Railway Age

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The Well-Being of American Labor

THE International Labor office at Geneva, Switzerland, has compiled some interesting figures as to the relative standard of living of working men in various countries. These figures are based on the purchasing power in food of the average worker on the basis of a 48-hour week. They show that the workers in America are earning about twice as much in food-purchasing power as workers in London. Taking London as 100, index numbers of some other cities are as follows: Philadelphia, 214; Ottawa, 173; Amsterdam, 89; Berlin, 55; Brussels, 59; Milan, 46; Lisbon, 32; Paris, 73; Rome, 46; Vienna, 47. We are not prepared to say to what extent labor is organized into unions in all these cities. We do know, however, that the percentage of organization in London is very high and that Vienna has a socialist government. Certainly neither in Philadelphia nor Ottawa have the dreams of the unionists been so completely realized. Yet in spite of a lesser degree of organization, our American and Canadian workers seem to be about twice as well off as those in London and four times as well off as those in Vienna. Apparently economic forces other than union strength have a far greater effect on wage levels than it does. Could anything be clearer than that the most powerful of these is the degree of industrial prosperity in the country? And insofar as the unions' objective is the bettering of the lot of their membership, can they not obtain this objective by fostering efficiency and a higher degree of productivity far more surely than by any other course open to them?

Transverse Fissures and the Section Foreman

THE transverse fissure in rails is generally considered the chief engineer's problem. Of serious potentialities, it calls for close study on the part of special assistants on the chief engineer's staff in order that the head of the department may maintain close contact with developments. Transverse fissures are being studied with two objects in mind, the discovery of preventive measures which will lead eventually to the manufacture of rails that do not have this defect, and, the discovery of symptoms indicating the presence of the defect in the rail before actual failure has occurred. Statistics can be no more accurate than the basic reports upon which they are founded and in the gathering of statistics on rail failures the trail leads from the chief engineer to the section foreman, but apparently this path is so devious that considerable difficulty is being encountered in delivering the message. Thus cases were brought to light recently on two large railroads where section foremen had put angle bars on breaks for which transverse fissures were clearly responsible. On another road the chief engineer was congratulating himself on the singular freedom which the property was enjoying from the menace of the fissure when he discovered that the records were at fault because many fissures were being reported incorrectly. For the development of reliable data as the basis for further study and for the dissemination of such facts as are now available regarding this peculiar type of failure, it is essential that the foreman be taught to identify a transverse fissure accurately and that he be thoroughly impressed with the serious consequences which may result from their presence in the track.

A Train-Rule Study

ANY operating officer who may be contemplating the revision of his book of train rules can find in the notice printed in the *Railway Age* this week, of the new books recently issued by two prominent roads, an ample supply of topics with which to start his committee at work. An examination of these carefully prepared handbooks suggests, indeed, that the large amount of work that has been done upon them really ought to be availed of by any rule-book maker who has a similar task before him, as a labor-saving expedient, as compared with the laborious process of investigating every detail de novo, or the slow process of consulting the A. R. A. committee. In short, it seems quite reasonable to say that the manager who takes (1) his own book, (2) the Association standard and (3) these two products of recent thorough studies, will have in hand *all the material needed* for the study which he must make preparatory to providing himself with the best possible book of train rules for his own road. These two books, compared one with the other, reveal sufficient differences to furnish all needed stimulus to the most listless committee! The thought back of this suggestion is that train-rule books usually, perhaps always, have taken altogether too much labor, time and expense in their revision. One prominent revision, now recalled, actually broke down because of the elaborateness of the layout prepared by the revising committee; and decisions finally were made, not by deliberate committee action, but by more or less arbitrary action on the part of the ranking officer. Life would have been too short for the exploration of all of the fine points that had been spread out on paper for possible attention. For reasons well known to those who have followed the action of the American Railway Association on the standard code, uniformity, the original goal aimed at, now exists only in a very restricted sense. Supplementary rules, made by each road to suit itself, are the basis for the most of the thought given to the subject of train rules either by their users or their revisers. And yet, uniformity is as desirable as ever; and it is desirable in countless details which have hardly been considered seriously from that standpoint. Uniformity is very desirable, indeed, in connection with that large body of rules (numbered above 699), which no one at present ever thinks of proposing for association action. This whole question of rule books may perhaps be thought by some to be one mainly of

form, not of substance; but is not the study of form alone well worth while? American railroad rule-books and time tables still contain an immense quantity of very crude material.

Condition of the Northwestern Roads

THE problem presented by the conditions existing on the northwestern group of railways is one which demands the attention of the people of that territory and of the railway regulating authorities. The northwestern lines only a few years ago were among the most prosperous in the country. At present they are suffering greater adversity than any other group of railways in the country. The situation of the Chicago, Milwaukee & St. Paul is especially serious, but it is only an extreme example illustrating railway conditions that prevail generally in its territory. In 1924 the net operating income earned by the seven principal northwestern lines was 35½ per cent less than in 1916, although there had been a large increase meantime in their property investment. In 1923 only the New England lines earned a smaller percentage of return on their property investment than the northwestern lines. In the first 11 months of 1924 the New England lines earned 3.6 per cent, while the northwestern lines earned only 3.15 per cent, which was somewhat less than in 1923.

The poor financial showing made by the northwestern lines is not due to uneconomical operation. Their operating expenses in 1924 were 26 per cent less than in 1920, while those of the railways of the country as a whole were 22 per cent less.

The condition of the northwestern lines is partly due to loss of traffic. In 1923 the railways of the country as a whole handled more freight business than in 1920. The freight business of the northwestern lines was less than in 1920, and their passenger business showed a decline of 30 per cent. In 1924 both the freight and passenger business of the northwestern lines was still less than in 1923.

The decline of freight business in the northwest has been due principally to the depression in agriculture and to the competition of the Panama canal route. Both these conditions have affected all the western lines adversely, but they seem to have done especial harm to the northwestern roads. The condition of agriculture throughout the western territory, including the northwest, is being rapidly improved by the great advances in the prices of farm products, and especially of grain. On the other hand, the competition of the Panama canal route is constantly increasing. The western transcontinental lines are now prohibited by the Interstate Commerce Commission from getting such business as they could by reducing their rates to the Pacific coast except under the penalty of correspondingly reducing their rates to intermountain communities. At a time when the railways that serve them are suffering more severely than any others in the country from inadequate earnings certain interests in that part of the intermountain territory served by the northwestern lines are especially active in trying to secure passage of the Gooding bill which would forever make it impossible for their railways to meet the competition of the water carriers on the Pacific coast.

Another condition from which all the western lines, including those of the northwest, are suffering is freight rates that are too low. The average rate per ton per mile of all the railways in the country is now 55 per cent higher than in 1913, while that of the western roads as a whole is only 37 per cent higher. The average haul per ton of the northwestern roads is only 189 miles, as compared with 195 miles in the Southwestern region and 254 miles in the Central Western region. Their density of traffic is slightly greater than that of the southwestern roads but is less than that of the central western roads. Their average freight revenue per ton per mile, however, is the smallest in western territory, being 1.14 cents, as compared with 1.22 cents in the Central Western region and 1.28 cents in the Southwestern region.

The northwestern roads need more business. They also need higher rates. Their net return has been and is yet so small that it not only does not approach the 5¾ per cent to which the Interstate Commerce Commission has held each large group of roads is entitled, but so small that these railroads could go into the courts and make a case showing that their property is being confiscated in violation of the federal constitution.

Two kinds of regulation are being advocated which would be especially harmful to the northwestern roads. One of these is the Gooding bill. The other is special reductions of rates on farm products. The people of the northwest need good and economical railway service. Their railways are not earning sufficient returns to enable them indefinitely to render such service. There are some people in the northwest who seem to realize this. Certain of the large producing interests in that territory, particularly the lumber manufacturers, are strongly opposing such destructive kinds of regulation as the Gooding bill.

If the people of the northwest generally would act in accordance with their true interests they would all of them be advocating a policy of regulation which would relieve the adversity from which their railways are suffering instead of working, as some of them are, for policies which would be destructive of the welfare of both the railways and the territory that they serve.

Automobile Accidents at Grade Crossings

THE railways are carrying on a campaign of education throughout the country to reduce accidents at highway grade crossings. Apparently it is beginning to bear fruit. About three-fourths of all persons now killed in grade crossing accidents are occupants of motor vehicles—passenger automobiles, autobuses and trucks. In the first nine months of 1924 the total number of fatalities at grade crossings was about five per cent less than in the corresponding period of 1923. The number of persons killed in accidents involving automobiles in 1922 was 1,359. A study recently made by the Baltimore & Ohio indicates that in 1923 the number was 1,759.

The *Railway Age* has no disposition to minimize the importance of the problem presented by grade crossing accidents. No reasonable effort should be spared by the railways to make progress toward its solution. We recently have noted, however, some very unfair and unwise utterances upon this subject which have emanated from men connected with the business of manufacturing automobiles. For example, there was published in the Chicago Journal on January 28 an interview with R. J. Everitt, president of the Rickenbacker Motor Company.

In this interview Mr. Everitt said: "If the railways would devote a fraction of the money to the improvement of their own methods of operation and especially to grade separation that they now spend in retaining lawyers and in court costs to contest damage suits, to repair and replace equipment destroyed in collisions, they would accomplish something beneficial to humanity and of permanent value to themselves. Sooner or later aroused public indignation will force the separation of all grades either by depressing the railroads or elevating them."

This is a very silly utterance regarding a great problem, but silly as it is, it is the kind of propaganda which, if allowed to go unchallenged, does great harm. Mr. Everitt evidently when he made these statements had no idea whatever of the number of grade crossings in the country, of what it would cost to have them eliminated or of the number of new grade crossings that are constantly being opened. And, unfortunately, he is not the only man who talks on this subject without knowledge.

Let us consider the cold facts as to what it would cost to separate all crossings of railways with highways at grade. On December 31, 1921, there were 252,507 grade crossings in the country. In 1922 705 of these crossings were eliminated at a total cost of $70,000,000. In that same year, however, 4,437 new grade crossings were created by the opening of highways across railways with the result that at the end of 1922 there were 3,732 more grade crossings than at the end of 1921, or a total of 256,362. There can be no doubt that new grade crossings continued to be created at an equal rate in 1923 and that at the end of that year there were approximately 260,000 in the country.

Figures already given show that the average cost of eliminating grade crossings in 1922 was almost $100,000 per crossing. It is reasonable to estimate that the elimination of all such crossings in the country would cost an average of $75,000 per crossing. Therefore, the cost of eliminating all the grade crossings that existed at the end of 1923 would have been about $19,500,000,000. If the railways should make this huge capital expenditure they would be entitled to earn an annual return of 5¾ per cent upon it, or $1,122,000,000. Compared with this huge increase in capital cost the saving that grade crossing elimination would make in operating expenses would be utterly trifling. Therefore, pactically the entire resulting increase in railway costs would have to be met by advances in freight and passenger rates.

The railways are now making capital expenditures of about $1,000,000,000 annually to enable them to handle increased business and reduce operating costs. To eliminate all the grade crossings that existed at the end of 1923 would require the investment of another $1,000,000,000 annually for 19 years. If new grade crossings continued to be opened as fast as they were in 1922 there would still be, at the end of the 19 years, 84,340 grade crossings.

Suppose, however, that no new grade crossings were opened and that by the elimination of those now existing all automobile accidents at highway crossings with railways were stopped. How large in proportion would be the reduction in the total number of fatalities resulting from the operation of automobiles? In 1923 the total number of persons killed in automobile accidents was 16,464, or nine times as great as the number killed at grade crossings. In other words, it is seriously proposed that the railways, to reduce automobile accidents, shall, for 19 years, raise $1,000,000,000 annually, the investment of which would have no effect whatever upon 90 per cent of the automobile accidents that occur.

Mr. Everitt offered a suggestion alternative to that of eliminating all the railway grade crossings. This was that railway trains be required to stop at all grade crossings. "Just consider for a moment," he said, "the terrific economic loss that would result from stopping 17 million motor cars several times each per day." This having reference to the proposal which has received some advocacy that drivers of motor vehicles be required to make a full stop before crossing a railway.

The average freight train contains 44 cars and many freight trains contain more than 100 cars. The average weight of a freight train is about 2,000 tons and the weight of many exceeds 5,000 tons. Passenger trains often include more than a dozen cars and many have to make speeds in excess of 60 miles an hour to maintain their schedules. On the average there is one highway crossing on every mile of railroad line. It would completely tie up all railroad transportation in the United States to require all trains to stop at highway crossings. What would be the "economic cost" of that?

Among the remedies for grade crossing accidents are the following: First, the elimination of grade crossings in congested areas as rapidly as is financially practicable at the joint expense of the railways and local communities. Second, the increase of protection at grade crossings as much as practicable. Third, the placing of warnings at all grade crossings. Fourth, the education of motorists to the danger of careless driving at such crossings. The last named is the most important of all. More careful driving of automobiles is essential to reducing not only the ten per cent of fatal accidents to them that occur on grade crossings but also the 90 per cent that occur elsewhere.

A Sensible Viewpoint on Suburban Transit

THE report of the North Jersey Transit Commission on passenger facilities in the metropolitan area of New Jersey, made public this week, shows such sound comprehension of the problems presented in the handling of dense short-distance, reduced-rate passenger traffic that it should make interesting and profitable reading not only for railroad officers in the area affected but anywhere else where similar problems await solution.

Northern New Jersey is a great suburb of New York City, embracing at the same time several populous cities of its own. Other suburbs of New York lie to the east in Long Island and to the north in Westchester county and Southern Connecticut. These latter are within easy reach of Manhattan Island because they are served by railroads which enter the heart of the city. New Jersey, on the other hand, is much more difficult of access because only one railroad, the Pennsylvania, serving the area has direct access to Manhattan. Its facilities are used also by the Lehigh Valley and the Baltimore & Ohio, but these roads handle no commuter traffic at all and, as a matter of fact, the Pennsylvania itself is surpassed in commuter business in Northern Jersey by three other railroads. These three roads, viz., the Erie, the Central of New Jersey, the Delaware, Lackawanna & Western, with the West Shore and the Pennsylvania's steam line terminating in Jersey City, carry the bulk of the suburban traffic and all of them terminate on the New Jersey side of the Hudson river, leaving the passengers to find their way to New York by ferryboat or the Hudson & Man-

hattan tube trains. The exchange to other agencies of transportation necessary at the Jersey water-front takes time. The railways' terminal facilities are becoming congested. Moreover, direct transportation facilities between important centers of population in New Jersey are lacking, so that passengers going from one to another often find it necessary to go first to New York and out again.

At one time the only step anyone thought of taking toward securing more desirable transportation facilities was to put pressure on the railroads, regardless of whether the improvements desired were justifiable from the railroads' standpoint or not. This view still persists in places. The North Jersey Commission's report, however, shows a laudable tendency away from it. It is coming to be recognized in this country that urban rapid transit cannot be profitably provided by unaided private enterprise at rates which the people, through the politicians, will consent to pay. Somewhat the same condition obtains with respect to suburban passenger facilities. The North Jersey Commission frankly recognizes the situation. It says:

"The railroads unaided cannot solve the entire problem, nor should they. . . . The State of New Jersey has a far greater interest in the problem than the railroads, because the future of the state is dependent in large measure upon the development of its transit facilities."

The report goes on to show how commuter traffic on the Long Island Railroad increased 350 per cent from 1911 to 1923, betokening a proportionate increase in wealth and population, whereas similar traffic on the Jersey roads increased in the same period only 74 per cent. In other words, direct and rapid transportation facilities, such as the Long Island Railroad offers, has brought a great increase in population and wealth to the communities it serves. Similar facilities should bring equal growth to New Jersey.

The obvious corollary to this line of reasoning, although the report does not state it in so many words, is that the land-owners and not the railroads stand to gain from improved transit facilities and that it is they who should provide the improvements. This part of the report, incidentally, provides a fitting rebuke to the zealous commuters of Long Island who, without considering the growth in population and wealth of Long Island due solely to the electrification of the Long Island Railroad and the millions spent to bring its lines under the East river to a terminus in the heart of the city, are fighting tooth and nail to keep their commutation rates at a lower level than those levied by the steam lines which terminate on the New Jersey side of the Hudson. With such an example of the gratitude which can be expected from the public before them, the New Jersey roads can scarcely be blamed for not having themselves undertaken the electrification of their lines and the expenditure of tens—perhaps hundreds—of millions to extend their terminals to Manhattan.

Our railroads were built primarily as through carriers of passengers and freight. The handling of suburban traffic in the environs of large centers of population is only an incidental service and one which, when it threatens to interfere with the railroads' principal function, must be put up to the communities involved for solution. When these communities show, however, as Northern New Jersey has, an understanding of the fact that the onus of solving the problem lies upon them, the railroads should be willing to meet them more than half way—to lend them every assistance in the ascertaining of the facts and in the expenditure of funds for those improvements which show beyond question their ability to earn adequate returns.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Cost of Handling Mail Matter. Report of Postmaster General in response to Senate Res. 269. U. S. 68th Cong. Senate Doc. 162. Rail transport of mail, p. 122-131, Railway mail service, p. 139-157 of Part I, which consists of 201 p. Part II consists of 82 statistical tables and 26 pages of forms. Published by Government Printing Office, Washington, D. C.

Estimated National Wealth: 1922, compiled by U. S. Bureau of the Census. "Estimated value of railroads and their equipment, by geographic divisions and states: 1922, 1912, 1904, and 1900," p. 10-11, 34. 34 p. Published by Government Printing Office, Washington, 10 cents.

Principles of Importing, by Wayne E. Butterbaugh. Especially Chap. 3, Shipping and Transportation Details; Chap. 12, Domestic Traffic and Terminal Problems, and Chap. 13, Freight Forwarding and Distribution. 473 p. Published by Appleton, New York. $5.00.

Report to the President by the Agricultural Conference on Administration of Federal Departments and Agencies Related to Agriculture, Feb. 2, 1925. Comments on work of Interstate Commerce Commission, p. 17-20. 25 p. Published by U. S. President's Agricultural Conference, Washington, D. C.

Smoke Abatement Investigation at Grafton, W. Va., by Osborn Monett and L. Russell Hughes. Technical Paper 338 of U. S. Bureau of Mines, describing study in which the Baltimore and Ohio co-operated. 29 p. Illus. Published by Government Printing Office, Washington, D. C. 15 cents.

Periodical Articles

Classification of Engineering and Industrial Standards, by F. J. Schlink. Includes those adopted by railroads for crossing signs, etc. Mechanical Engineering, February, 1925, p. 119-122.

The Great Northern Railway and Its Locomotives, by Paul T. Warner. A history of motive-power that is also a history of the railway. Illustrated. Baldwin Locomotives, January, 1925, p. 3-33.

Improvement of the System of Overland Communications on the Seward Peninsula, Alaska. Debate in Congress. On page 2659-2660 is description by Delegate Sutherland of the narrow-gage railroad out from Nome on which dogs are used as motive-power. Congressional Record, January 28, 1925, p. 2659-2662.

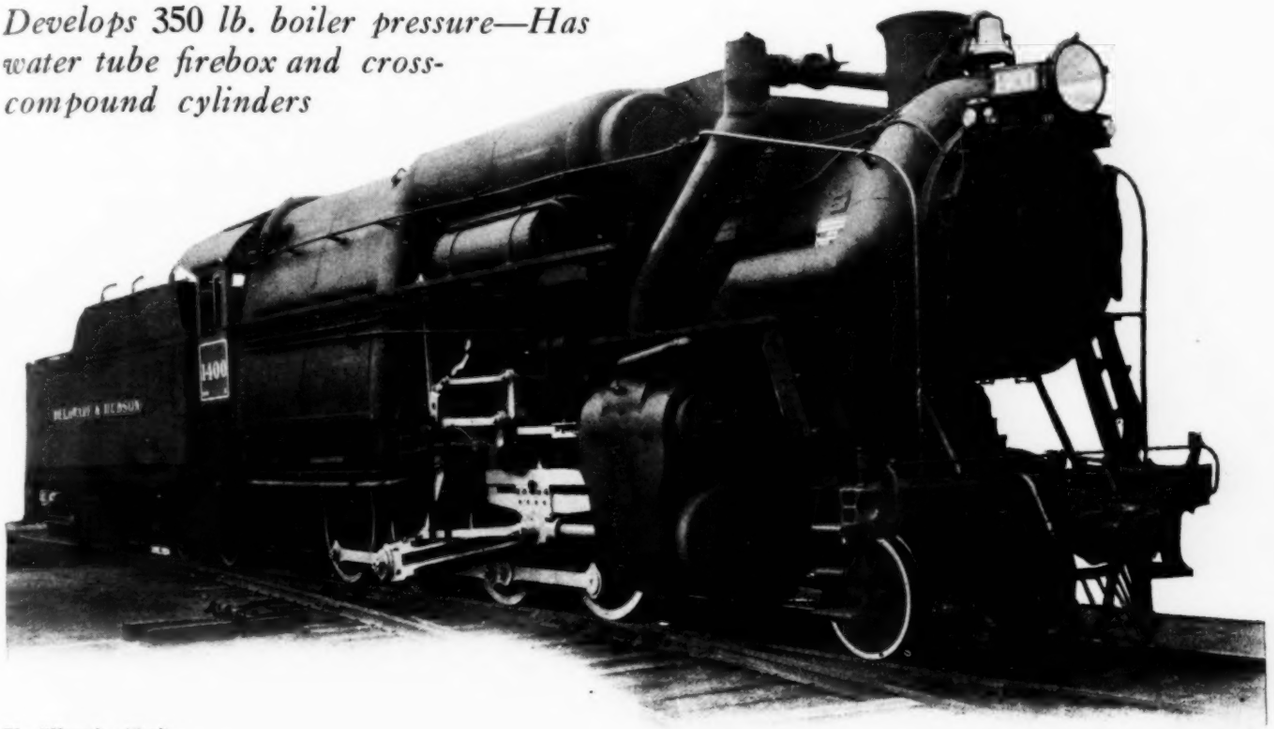
Railway Organization, by "Chief Officer." Presentation of a scheme of organization to effect closer contact between management and subordinate officers, which discusses briefly the American organization. Editorial comment, p. 2. Modern Transport, (London) January 17, 1925, p. 3, 12.

The South Built the First Railroads in America, by Samuel G. Wilmer. Historical sketch of southern railroads, 1826-1924. In "The South's Development," Part II, of Manufacturers' Record, Dec. 11, 1924, p. 263-269.

HIGHWAY ENGINEERING is to be the subject of a conference to be held at the University of Michigan, Ann Arbor, on Monday, February 16 and the three following days, under the direction of the College of Engineering. Professor A. H. Blanchard is in charge of the arrangements.

D. & H. High Pressure Locomotive

Develops 350 lb. boiler pressure—Has water tube firebox and cross-compound cylinders



The "Horatio Allen"

ON December 4, 1924, a new Consolidation type locomotive of unique design was christened the "Horatio Allen," by the Delaware & Hudson. An account of the christening ceremonies and a brief description of the locomotive appeared in the December 13, issue of the *Railway Age*.

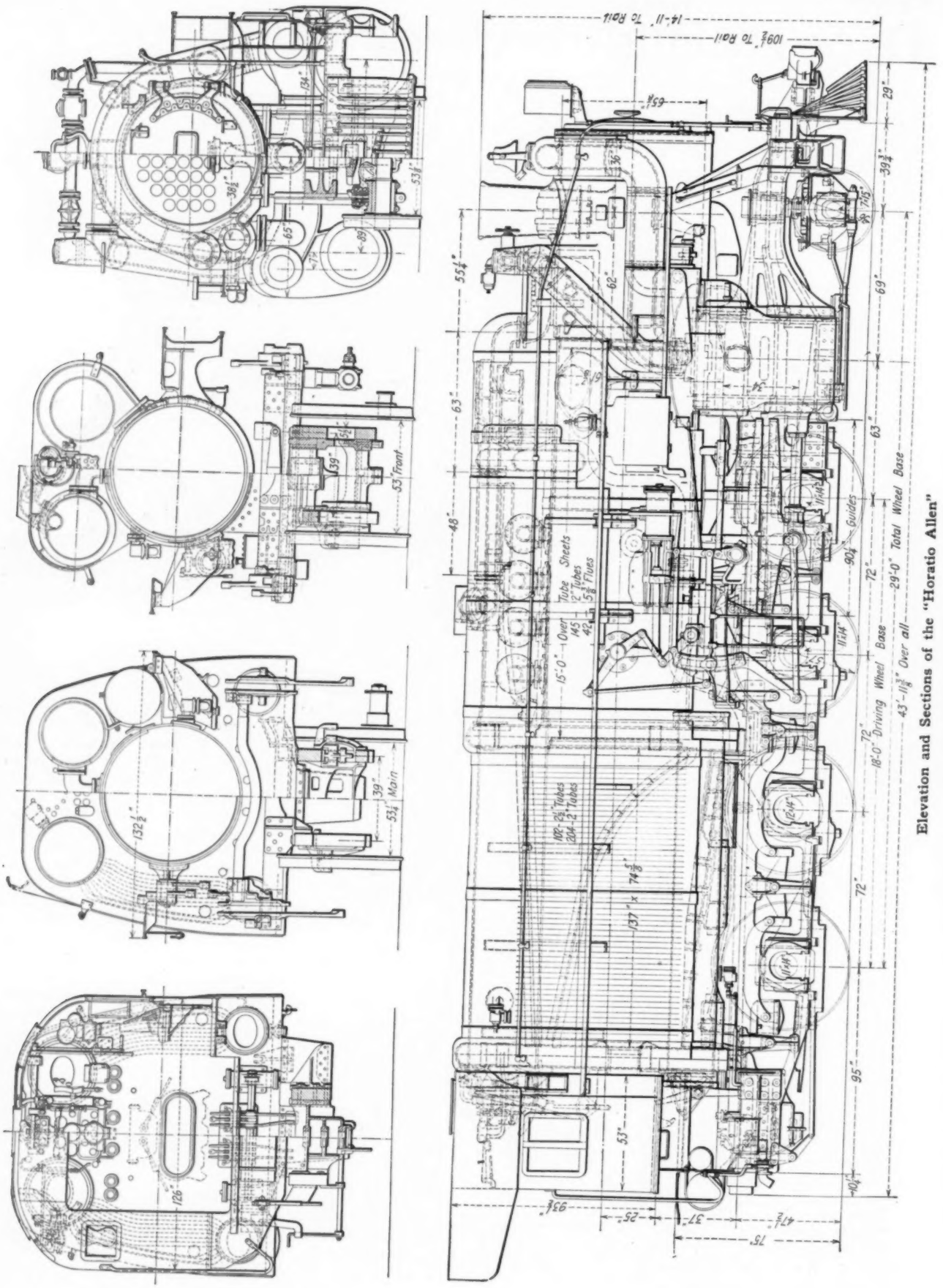
The design of the new locomotive was developed by John E. Muhlfeld, consulting engineer for the railroad, and it was built by the American Locomotive Company. It represents a pioneer attempt to increase the thermal efficiency of the locomotive by employing the greater expansive range made possible by steam pressures much higher than are now employed in conventional locomotive designs.

The "Horatio Allen" is of the Consolidation type weighing 297,000 lb. on the drivers, with tractive force ratings of 104,000 lb. simple, including the tender booster, 84,300 lb. simple for the engine alone, and 70,300 lb. compound. The locomotive carries 350 lb. boiler pressure and works steam expansively in cross-compound cylinders of 23½-in. and 41-in. diameters, respectively, by 30-in. stroke. The driving wheels are 57 in. in diameter. In actual service the locomotive has developed drawbar pulls of 105,000 lb. at starting simple with the booster cut in; 95,000 lb. in simple gear at 4 miles an hour; 75,000 lb. in compound gear at 5 miles an hour; 65,000 lb. in compound gear at 10 miles an hour, and 53,000 lb. in compound gear at 18 miles an hour.

The Boiler Design

The boiler represents a complete departure from customary locomotive design. The type of construction is shown in one of the photographs. The back head and rear tube sheet connections of the firebox are both of similar construction. They are 9-in. water leg headers composed of parallel stayed sheets, flanged and riveted together around the top and sides and secured to steel foundation castings at the bottom. Circular openings through each of these members near the lower corners receive water drums, 20 in. in inside diameter. These drums pass completely through both of the headers, and ports are cut through their shells in the header water spaces. The 30-in. steam drums at the top are secured to the front and back headers in the same manner. These drums are made in two courses, the front course fitting inside the rear course and extending 133 in. forward along the boiler shell. The front ends pass through a stayed saddle secured to the top of the boiler barrel and ports through the drums and through the boiler shell provide for communication through the saddle between the drums and the boiler barrel. The ends of all four drums are closed with internally projecting heads and hand-hole covers. Four pipe connections lead out from the top of the boiler barrel between the forward extensions of the steam drums and connect alternately into the two drums, thus adding considerably to the freedom of communication between the boiler barrel, which is completely filled with water, and the drums, the upper parts of which constitute the steam space of the boiler. The front sheet of the forward firebox header is flanged outward to receive the back course of the two-course boiler barrel, which is 66⅛ in. in outside diameter. The inside sheet of this header is flanged inward to receive the firebox tube sheet.

The heating surfaces at the sides of the firebox are composed of 306 tubes, 102 of which are 2½ in. in diameter and 204 of which are 2 in. in diameter. These tubes are expanded into the top and bottom drums. It is thus evident that the amount of stayed surfaces have been considerably reduced and are flat, parallel surfaces, with



Elevation and Sections of the "Horatio Allen"

the exception of the small area of the firedoor flange. The drum and header type of construction, with the top headers carried forward and securely attached to the boiler barrel, also provides an extremely rigid structure.

Additional heating surface is provided in the firebox by ten 3-in. longitudinal water tubes which lie between the upper drums and connect the front and back stayed headers. There are also six 3½-in. arch tubes. The arch in this locomotive is unbroken from the tube sheet to the door sheet, thus completely dividing the unobstructed firebox volume into two parts. This directs the hot gases and flame outward at either side and up through the staggered rows of water tubes, thence inward to the combustion chamber volume above the arch and into the fire tubes.

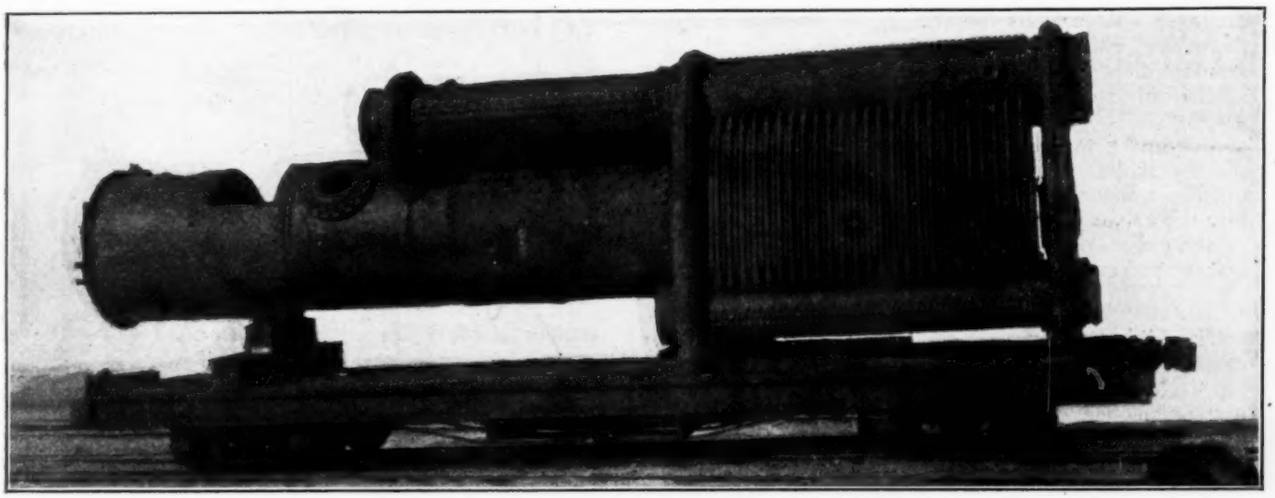
The Steam Distribution System

Steam is taken from the tops of the forward sections of the steam drums. A welded collector pipe of ¼-in. steel, 6 in. in outside diameter and 79 in. long, is suspended from the top of each drum. The upper surface of each of these pipes is perforated with several rows of ½-in. holes, through which the steam enters, thus distributing the gathering of the steam over a large water surface and removing any tendency for a local surge of steam to lift the water. From these pipes the steam passes out of the drum into a yoke header casting between the drums, to the front flange of which is bolted a Sanford-Riley Stoker Company's desaturator. This is of the centrifugal type, the whirling of the steam through a horizontal spiral passage causing the water to be thrown off and collected at the bottom of the casting, from whence it is trapped back into the boiler. The front flange of the desaturator is bolted directly to the throttle casing.

The perforated steam collector has proved so effective in service that very little water is removed by the desaturator and some question has arisen as to whether or not it is actually needed. The overall effect of both the collector and the desaturator has been found by calorimeter readings to limit the maximum moisture content of the steam to two or three per cent.

The throttle is of unique design, known as the duplex type. There are two throttles, each operated by a separate lever. What is termed the preliminary throttle is used in starting the locomotive. This takes its steam through a reducing valve which limits the pressure to 300 lb. per sq. in. When the locomotive has been started by the use of this throttle, the main throttle may be opened and the two throttle operating levers automatically interlock so that the continued opening of the main throttle picks up and carries with it the auxiliary throttle lever. Closing the main throttle unlocks the connection between the two levers so that the preliminary valve lever is free to move independently in starting. The throttle valves are of the Chambers type.

From the throttle the steam flows directly into the superheater header, which is mounted on a cast base over the top of the smokebox. The unit bolts are applied with the nuts at the top of the header, where they are accessible for tightening without opening the smokebox front. There are 42 superheater units, each of which consists of a single loop. The unit pipe leading from the saturated steam header is twisted above the return pipe in a spiral and the two pipes are threaded and welded into a cast steel return bend which is located 12 in. from the back flue sheet. The whirling motion imparted to the saturated steam is designed to bring such moisture as the steam may contain into intimate contact with the unit surface, thus producing a more effective heat transfer.



The Boiler Complete, with Water Tubes in Place

It also serves to equalize the expansion strains on the return bend joints. Steam from the drifting valve passes through the superheater and thus serves to protect the units from overheating, when the throttle is closed.

A flange on the right side of the superheater header leads the superheated steam into a branch pipe connection to the high pressure steam chest. In the design of this cylinder close attention has been given to providing unobstructed flow to and from the valve chamber.

The simpling of the cylinders at starting and the change to compound operation, either automatically at the proper speed or manually at the will of the engineman, is controlled by a Mellin intercepting valve. This valve is inserted in the receiver line and is attached directly to the exhaust cavity opening from the front of the high pressure cylinder casting. From the intercepting valve casing the receiver pipe is carried forward and over the top of the smokebox in front of the stack, thence back to the valve chest connection of the low pressure cylinder.

The steam distribution is controlled by the Young valve gear, operating a 12-in. piston valve in the high pressure steam chest and a 14-in. double ported piston valve in the low pressure steam chest.

Considerable attention was given to the design of the

steam passages to provide ample area free from obstruction. The dry pipe passage up to the throttle is 8½ in. in diameter, except for a flange at the outlet of the desaturator, which is reduced to 8 in. in diameter. From the throttle to the superheater header the passage is 7½ in. in diameter, and this size is retained through to the high pressure cylinder. The passage through the receiver pipe is 10 in. in diameter.

Superheated steam for the tender booster is taken from the high pressure branch pipe where it connects to the main superheater header. Superheated steam for the other auxiliaries is also provided by an auxiliary superheater, the units of which pass into the upper part of the firebox through the tubes in the back header.

Frame and Cylinder Construction

One of the most interesting departures from conventional design is in the frame construction. The main frames terminate just back of the cylinders and the front rails are replaced by a combined saddle, frame and front deck casting of steel. The high-pressure cylinder is secured on the right side and the low-pressure cylinder on the left side. The smokebox saddle fit is made in a separate casting, which is bolted to the top of the main casting. This permits the removal of the boiler without disturbing either the smokebox saddle fit or the main frame splice.

The only steam passage cored through the steel saddle casting leads from the exhaust passage of the low-pressure cylinder to the front face of the saddle casting on the center line of the locomotive. From this point an outside exhaust pipe carries the steam forward and up into the exhaust nozzle in the smokebox. The center line of the exhaust nozzle is located 65½ in. forward of the transverse center plane through the cylinders.

Other Details

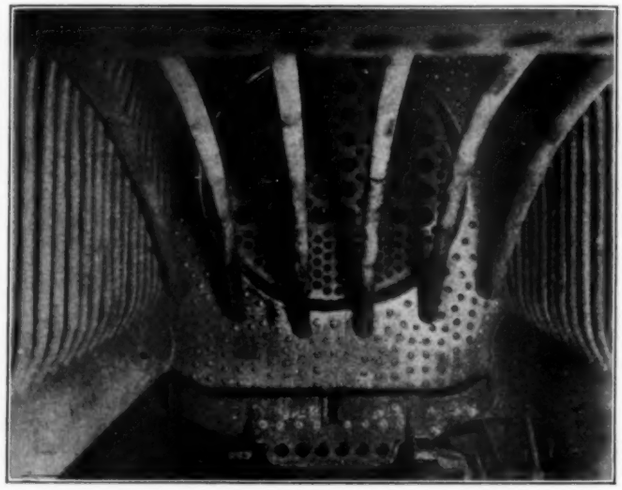
The high-pressure exhaust, when operating simple, is carried from the intercepting valve through a 3½-in. pipe to an opening in the base of the exhaust nozzle casting outside the smokebox. This opening leads to an annular chamber outside the main exhaust passage and discharges through annular openings in the top of the casting. The high-pressure steam connection is a 3½-in. pipe which leads directly into the main steam passage at the top of the steam chest of the high-pressure cylinder casting. The location of the intercepting valve in direct connection with the high-pressure cylinder makes it readily accessible for repair or adjustment.

Among the other special features, which may be mentioned in the equipment on this locomtive, is the use of the Owen's system of force feed lubrication, with oil inlets at the bottom of both cylinders as well as in both valve chests. The boiler tubes are fitted with Coleman safe-ends.

The tender, which has a capacity of 9,000 gal. of water and 15¼ tons of coal, is carried on a Franklin tender truck at the front end and an M. & L. tender booster truck at the rear end.

What Is Expected of the "Horatio Allen"

Probably the outstanding difference in the proportions of the "Horatio Allen" as compared with locomotives of conventional design will be found in the distribution of the heating surface in the boiler. Out of a total heating surface of 3,200 sq. ft., 1,187 sq. ft., or 37 per cent, is located in the firebox. This is the result of the water-tube construction. Considering the much greater evaporative value of the firebox heating surface as compared with that of the fire tubes, the capacity of the boiler is much greater than indicated by the total heating surface when compared with the same total amount in a boiler of conventional design, where probably less than 10 per cent of the total would be contained in the firebox. Another factor of interest is the comparatively small amount of superheating surface, the total of which is 579 sq. ft. The purpose in this case, however, was to limit the maximum steam temperature to approximately 600 to 620 deg. F., and this temperature became the controlling factor in the design rather than the amount of superheat. With a boiler pressure of 200 lb. per sq. in., the superheater starts to build up the temperature of the steam from a saturated temperature of 388 deg. F. With the pressure increased to 350 lb., however, the saturated steam temperature is raised to approximately 436 deg. and the amount of heat which can be imparted to the steam within a limit of 620 deg. is correspondingly reduced. Until it is determined what effect will be produced by a combination of high pressures and high temperatures, it was considered safer not to exceed the above maximum temperature.



Interior of the Firebox Before Placing the Arch—The Fire Tubes Fill the Boiler Barrel

Fuel Economy

The main purpose throughout the design of this locomotive has been to make available the increase in economy and capacity provided by the greater expansion range of pressures considerably higher than those commonly employed. Considering the latent heat of evaporation as a fixed charge which must be distributed over the additional heat applied to build up the pressure to its working point, it is evident that considerable thermal advantage is to be gained by increasing the working pressure and thus decreasing the amount of latent heat which must be charged against each pound of useful pressure. The total heat in one pound weight of steam at 200 lb. pressure, is 1,199 B.t.u., but 1,150 B.t.u. remain in the steam after it has expanded down to atmospheric pressure, a difference of 49 heat units per pound. To raise the steam from 200 to 350 lb. requires a fraction over 7 additional heat units while the expansion range has been increased 75 per cent.

The calculated improvements in economy, which are expected from this design, are 15 per cent less fuel per drawbar horsepower-hour from the increase in pressure; a reduction of 12 per cent in fuel per drawbar horsepower-hour attributable to the boiler, because of the generation of 75 per cent instead of 40 per cent of the steam in the firebox and the improved circulation in the water-tube type of construction, and a reduction of 17

per cent in fuel by compound expansion in the cylinders. This amounts to a combined estimated saving of approximately 39 per cent in the fuel consumption per drawbar horsepower-hour.

The principal dimensions and proportions are as follows:

TABLE OF DIMENSIONS, WEIGHTS AND PROPORTIONS

Builder	American Locomotive Co.
Railroad	Delaware & Hudson
Type of locomotive	2-8-0
Service	Freight
Cylinders, diameter and stroke	23½ in. and 41 in. by 30 in.
Valve gear, type	Young
Valves, piston type, size	H.P.—12 in.; L.P.—14 in.
Maximum travel	9 in.
Weights in working order:	
On drivers	298,500 lb.
On front truck	49,500 lb.
Total engine	348,000 lb.
Tender	197,800 lb.
Wheel bases:	
Driving	18 ft.
Rigid	18 ft.
Total engine	29 ft.
Total engine and tender	65 ft. 7¼ in.
Wheels, diameter outside tires:	
Driving	57 in.
Front truck	36 in.
Journals, diameter and length:	
Driving, main	12 in. by 14 in.
Driving, others	11 in. by 14 in.
Front truck	7 in. by 15 in.
Boiler:	
Type	Combined water and fire tube
Steam pressure	350 lb.
Fuel, kind	Bituminous and anthracite mixed
Diameter, first ring, inside	61⅞ in.
Firebox, length and width	137 in. by 74⅝ in.
Arch tubes, number and diameter	6—3½ in.
Fire tubes, number and diameter	145—2 in.
Fire flues, number and diameter	42—5⅜ in.
Length over tube sheets	15 ft.
Grate area	71.4 sq. ft.
Heating surfaces:	
Firebox	1,124 sq. ft.
Arch tubes	63 sq. ft.
Tubes	1,132 sq. ft.
Flues	881 sq. ft.
Total evaporative	3,200 sq. ft.
Superheating	579 sq. ft.
Comb. evaporative and superheating	3,779 sq. ft.
Tender:	
Water capacity	9,000 gal.
Fuel capacity	15¼ tons
General data estimated:	
Rated tractive force, simple	84,300 lb.
Rated tractive force, compound	70,300 lb.
Booster	19,700 lb.
Weight proportions:	
Weight on drivers ÷ total weight engine, per cent	86
Weight on drivers ÷ tractive force, simple	3.54
Weight on drivers ÷ tractive force, compound	4.24

I. C. C. Criticised

WASHINGTON, D. C.

THE Agricultural Conference, appointed by President Coolidge to recommend measures for the improvement of the conditions of the farmers, has submitted to the President another report on the subject of farm relief legislation in which it criticises the Interstate Commerce Commission for neglecting its "responsibility as an advocate of the shipper" and developing into a court. The law creating the commission, the report says, intended that it should "act not only as an arbiter or judge between shippers on the one hand and railroads on the other but also as an investigator and advocate for the shipping public in general."

In another part of the report, however, the commission finds that disastrous effects have resulted from the exercise by many federal departments of both service and regulatory functions dealing with the same commodity or industry and it recommends a separation of such functions. It believes that the creation of some inter-departmental agency charged with the duty to study the matter of the accumulation of duplicate data, statistics, etc., by different branches of the government and to promote inter-departmental co-ordination in the assembling and use of government information, would be a wise and effective step toward better administration.

Regarding the Interstate Commerce Commission the report says:

"It is unfortunate that in more recent years the Interstate Commerce Commission has failed or has been unable to recognize its responsibility as an advocate of the shipper and has developed into a court. The methods of procedure and the practices that have been developed are constantly making it more difficult for a shipper to obtain redress.

"The cost of employing counsel and the necessary experts makes its almost impossible for the ordinary citizen to get a hearing. There are few, if any, courts where it is more expensive or more difficult to obtain relief, neither is there any court more deliberate in reaching its decisions after a case is presented.

"It is apparent to the conference that multiplication of work in the Interstate Commerce Commission during recent years, together with limited funds, have contributed to the present situation.

"The situation is such, however, that a farmer representing an unorganized industry and who is not in a position to retain traffic and legal advisors cannot expect ample consideration from the commission unless some agency is provided whereby it will be the duty of some one to represent agriculture in hearings before it.

"It is the feeling of the conference that problems coming before the Interstate Commerce Commission are so closely allied with marketing and distribution that such work on behalf of the farmer could well be undertaken by the Federal Co-operative Marketing Board, proposed in the preliminary legislative report of the conference."

Opposition to Woodlock

WASHINGTON, D. C.

PRESIDENT COOLIDGE'S appointment of Thomas F. Woodlock of New York as a member of the Interstate Commerce Commission has again aroused the ire of Democratic members of Congress from the Southeast and the Southwest, who have long been objecting because an appointment has not been made from their sections of the country. The opposition is taking the form of efforts to hold up confirmation of the appointment by the Senate and Senator Trammell of Florida has introduced a bill to provide that commissioners shall be chosen from various named sections. While several Texas Congressmen have made speeches in the House declaring that the next appointment should have been made from that part of the country, and Southeastern senators have taken a similar position as to their own section, they apparently agree in failing to be satisfied with a New York Democrat who is said to have voted for Hughes in 1916 and Coolidge in 1924 for President.

Representative Rayburn of Texas in a speech in the House on January 28 said that whereas the law provides that not more than six commissioners shall be members of the same political party he figured that there were already seven Republicans on the commission because Commissioner Eastman, who is supposed to be an independent, was formerly a Republican. This means, Mr. Rayburn said, that he certainly is not now a Democrat. Aside from this consideration, he said, "even the state of Texas, with its 15,000 miles of railroads, presents a transportation problem within itself that should be registered in the Interstate Commerce Commission and its proceedings." He also said that Mr. Woodlock had been recommended to the President by Frank A. Munsey and Matthew C. Brush and he read a list of the corporate directorates held by Mr. Brush. Senator Smith of South

Carolina, chairman of the Senate committee on interstate commerce, is leading the fight in the Senate against confirmation of Mr. Woodlock's appointment, and the committee took no action at its meeting on Monday. Some of the Texas Representatives also expressed opposition to the appointment during the debate on the appropriation for the Interstate Commerce Commission.

At the White House it was stated that the President had appointed Mr. Woodlock because of his great familiarity with railroad financial matters and the especial need for a man on the commission at this time of such qualifications because of the large number of important financial questions before the commission. Commissioner Potter, who resigned, effective on February 1, has been a member of the division of the commission which handles the finance docket and was also a member of the consolidation committee.

Senator Trammell's bill proposes that the commission shall be composed of one member from each of the following geographical divisions of the United States: New England, North Atlantic states, South Atlantic states, Gulf states, Southern states, Great Lakes states, Central Western states, Southwestern states, Northwestern states, Pacific Coast states, and Central Interior states.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended January 24 amounted to 924,254 cars, an increase of 32,773 cars as compared with the corresponding week of 1924 and of 54,790 cars as compared with 1923. While this loading exceeds previous records for the corresponding week there was a decrease of 8,014 cars as compared with the week before, largely due to lighter coal loading. Loading in the Eastern and Southern districts and of livestock and coal was less than that for the corresponding week of last year, but all other districts and classes of commodities showed increases. The summary as compiled by the Car Service Division is given at the top of the next column.

The increased demand for cars for loading has resulted in a reduction of the number of surplus freight cars to 228,836 for the week of January 15-22. This included 77,964 coal cars and 109,082 box cars. The Canadian roads for the same week had a surplus of 26,900 freight cars, of which 22,850 were box cars and 300 were coal cars.

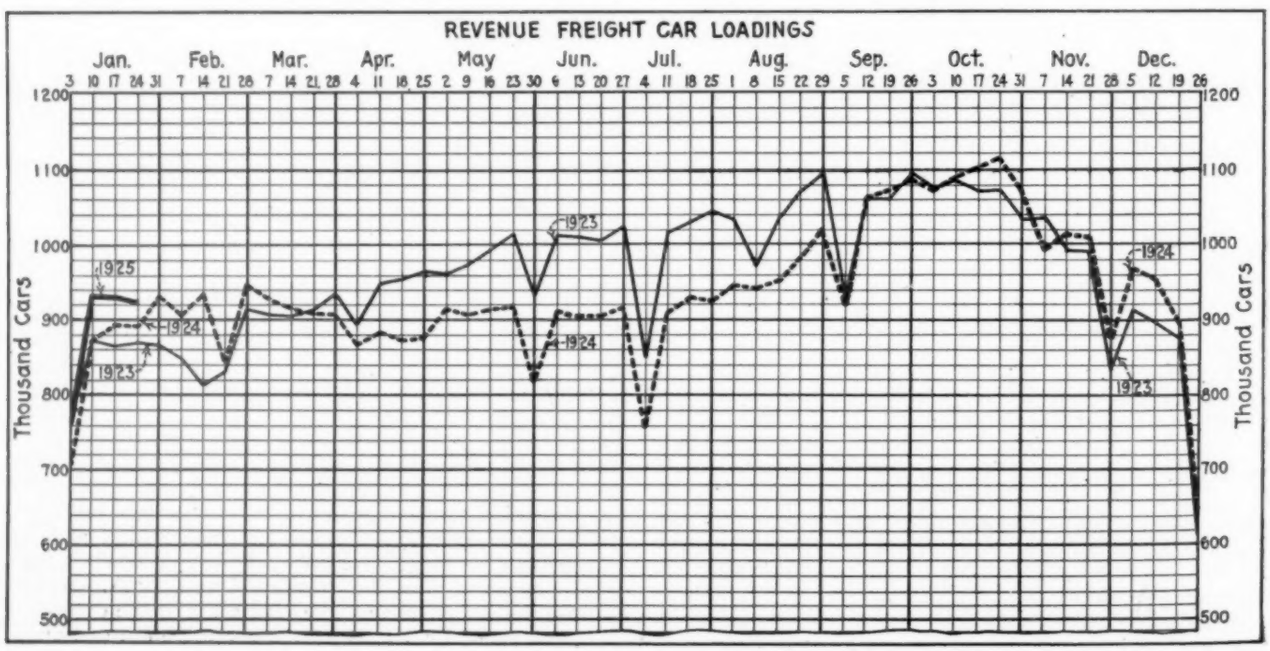
REVENUE FREIGHT CAR LOADING—WEEK ENDED SATURDAY, JANUARY 24, 1925

Districts	1925	1924	1923
Eastern	210,261	212,614	207,428
Allegheny	185,123	179,866	192,013
Pocahontas	49,888	39,985	32,337
Southern	139,016	139,071	131,225
Northwestern	123,302	113,825	117,251
Central Western	148,982	144,751	134,502
Southwestern	67,637	61,369	54,708
Total Western	339,921	319,945	306,461
Commodities			
Grain and grain products	53,724	48,690	46,795
Livestock	33,011	35,699	34,974
Coal	201,229	204,396	194,282
Coke	13,381	12,467	14,497
Forest products	74,314	73,055	69,477
Ore	10,278	8,530	11,253
Mdse., l.c.l.	239,064	225,648	211,816
Miscellaneous	299,253	282,996	286,270
Total	924,254	891,481	869,464
January 17	932,150	894,851	864,297
January 10	932,807	872,023	872,908
January 3	765,727	706,292	767,296
December 27	.....	646,880	615,419
Cumulative total, four weeks	3,554,938	3,364,647	3,373,965

Car Loading in Canada

Revenue car loadings at stations in Canada during the week ended January 24 totalled 50,433 cars. In the Eastern division the loadings decreased 747 cars from the previous week, the cold weather evidently having an effect. In the Western division the decrease was 920 cars, the decrease in coal loading accounting for 1,122 cars. Compared with the same week in 1924 the increase was 4,782 cars, grain loading almost holding its own and merchandise, pulpwood, other forest products and miscellaneous freight recording good increases.

	Total for Canada			Cumulative totals to date	
Commodity	Jan. 24, 1925	Jan. 17, 1925	Jan. 26, 1924	1925	1924
Grain and grain products	6,734	6,626	6,990	23,461	31,448
Live stock	2,311	2,482	1,734	9,988	7,749
Coal	3,944	6,467	4,550	25,358	21,538
Coke	334	315	223	1,232	916
Lumber	2,688	2,647	2,568	9,874	9,393
Pulpwood	4,338	4,506	3,644	14,057	10,803
Pulp and paper	2,156	1,926	2,026	7,709	7,828
Other forest products	3,339	2,826	2,619	10,191	9,342
Ore	1,270	1,163	859	4,563	3,288
Merchandise, l. c. l.	13,907	13,327	11,575	50,933	44,997
Miscellaneous	9,412	10,321	8,863	36,098	35,351
Total cars loaded	50,433	52,606	45,651	193,554	182,953
Total cars received from connections	34,910	33,425	32,103	121,908	116,008



Two New Train-Rule Books

Examples of latest kinks in practice in the east and in the far west

THE New York, New Haven & Hartford and the Western Pacific have recently issued revised editions of their books of train rules, each containing numerous additions and changes which will make interesting reading for superintendents, trainmasters, dispatchers and others who are familiar with this branch of railroad "literature," and who are fortunate enough to get copies of one or both of the books. Comparisons of ideas (and of words) to be found in these latest products of the collective train-operator's brain, with what has been printed on the same subjects in the past, will afford material for an unlimited amount of discussion.

The New Haven book went into effect on January 1 and the other one six months earlier. It would have been a pleasure to give to the readers of the *Railway Age* comprehensive reviews of these books (separately); but a brief examination of their pages disclosed, in both cases, that the points of interest are so numerous—and so many questions of importance hinge on the construction of a single sentence, or on a citation from two or more pages, far apart from each other—that the only satisfactory review would involve the reprinting of the whole book, which limitations of space would forbid.

It has been decided therefore, to be content with quotations and explanations of some of the more noticeable and instructive changes. These notes may serve at least as a partial guide for those readers who may wish to investigate further.

Theoretically, the standard code, as issued by the American Railway Association (based on the successive revisions which have been made of the original code of 1886) is a nearly complete compendium of the *most essential* rules for safe and convenient practice in ordering the movement of trains on the standard American railroad. The blanks left in the various paragraphs, to be filled by individual roads "to suit their own requirements," call, supposedly, for little more than brief additions or easily made changes. But in point of fact the changes and additions which have been made by these two roads (which are not different in general character from those that have been coming into use all over the country during the last 35 years) really produce a marked amplification of the original code; and it seems proper to treat these books, as we have done in our title, as works worthy of notice as independent productions. The original groundwork established by the "fathers" in the last century is, indeed, retained, but there is such a multitude of necessary points that the American Railway Association left untouched that each individual road's book today furnishes material for an absorbing study on its own account. This situation is unavoidable. A *complete* uniform code of train rules would be a great thing, and of undoubted usefulness, educational and otherwise; but the ultra-democratic nature of the American railroad world makes such a thing impossible. There is no power which can make the minority submit to the majority.

The two books here referred to are of particular interest because of their authors—that is, the authors of the changes. On the Western Pacific, Harry W. Forman, who is assistant to the general manager of that road, had a hand in the work; and Mr. Forman's characteristics, with which readers of the *Railway Age* have often been made acquainted, will be noted by the interested reader. Mr. Forman, during the past 25 years, has undoubtedly made a more thorough and fruitful study of American train rules than any other individual. The New Haven's book is notable as the product of a comparatively small committee, working on the rules of a road that is 75 years old—parts of it 90 years—which operates in a very thickly settled territory and which has to meet the most exacting conditions of congestion and costly operation. This present code may be called a refined revision, being based on a very thorough revision made in 1914—and the two committees, ten years apart, were made up in large part of the same men.

The non-standard sections of these books—those portions beyond rule 699—are also of special interest to any one who examines train rule work in detail. A detailed

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comparison of the two roads' work on this portion is not practicable, under present conditions, but as a suggestion of comparisons which have a potential value we show lists of the contents of each of the books (including both the standard and the non-standard portions).

Notes on Rules 1–199

The general rules (lettered, A-L) are extended on the New Haven road, 14 being added, M to Z, inclusive. Rule G prohibits not only intoxicants but narcotics. These additional New Haven rules embody some repetitions; rule N, for example, being an amplification of a part of the "General Notice." Rule Z is as follows:

> The several Federal and State Hours of Service Laws for employees connected with train operation contemplate that employees in this service shall have ample rest and be physically and mentally fit for the performance of their duties. Such employees are prohibited from using their time while off duty in a manner that may unfit them for the safe, prompt and efficient performance of their respective duties. They must use their time off duty primarily for obtaining ample and proper rest.

Definitions. The New Haven omits "superior direction" as on this road all trains of the same class are superior to opposing trains to their schedule meeting point. In the Western Pacific definitions the last one reads as follows: "With Caution—to run at restricted speed, according to conditions, prepared to stop short of a train, engine, car, misplaced switch or other obstruction, or before reaching a stop signal. Where circumstances require, train must be preceded by a flagman."

Rule 4, in the Western Pacific book is followed by 4-A and 4-B dealing with new time tables and bulletin boards.

Rule 14. The New Haven road has 12 different whistle signals for recalling flagmen, one for each direction on each of six main tracks.

Rule 17. This rule, regulating the use of head-lights, is amplified by the Western Pacific to fill about a page.

Rule 21, on the Western Pacific, provides for illuminated train indicators; on the New Haven white signals are omitted on freights running on double track lines.

Rule 34. Both roads have the latest standard rule which requires *all members* of crews to call signals by name, when practicable, as the train approaches the signal.

Rule 35. This is omitted in the New Haven book. Rules 36-70 inclusive, are blank in the standard. The New Haven has introduced, at this point, rules Nos. 40 to 44 inclusive, on the designation and use of tracks. Rule 44 describes the procedure for running trains against the current of traffic.

Rule 72. All reference to superiority by direction is omitted on the New Haven.

Rule 86. The words "unless otherwise provided," with which this rule begins in the standard code, are omitted in the New Haven book, and the same omission is noticeable at numerous other places in the book. In the Western Pacific book, the rule reads, "Except within block signal limits" an inferior train must, etc.

Rule 87. On the Western Pacific, rule S-87 (A) reads "should there be occasion to do so, brakemen and firemen must remind conductors and enginemen of the time of opposing superior trains which must be cleared." A similar injunction will be found in rules 210 and 211.

Rule 91. The Western Pacific time interval is 10 minutes; New Haven 5 minutes, except when following a train carrying passengers, when it is 10 minutes. From a paragraph in rule 93 it appears that the term "passenger" includes caretakers of freight and also employees not engaged in handling the train; and attention is called to the fact that this provision may apply in the case of a work train.

Rule 94. The New Haven omits the standard rule but has one of its own, directing conductors and enginemen in trouble to send a message to the superintendent, both signing it, and assuring him that their train will be kept where it is and will be protected in both directions.

Rule 96. The Western Pacific rule is more complete than the standard, and quite different.

Rule 99. The Western Pacific flagging rule specifies a distance of one-quarter mile for the first torpedo and one-half mile for the next two. This rule, with its supplements, fills nearly two pages. The New Haven, following the standard, does not specify distance. On the Western Pacific Rule 99 A reads: "During momentary stops at stations, the flagman of a passenger train must take position with flagman's signals at least thirty feet from rear of train.

Rule 100, on the Western Pacific says that when a passenger flagman goes back, the conductor must take his place.

Rule 104. The Western Pacific follows this with rules 104 A, B, C, D, E, F, G and H; three pages about management of switches.

Rule 108. This time-honored rule, covering cases of doubt or uncertainty, appears in the Western Pacific code as 107, various changes having been made in rules preceding this.

In the standard code, Numbers 109 to 200, inclusive, are blank. The Western Pacific inserts here two rules peculiar to double track operations.

The New Haven introduces here seven rules covering various points. The last of these, No. 115, is designed to make certain pages of the time table supplements to the permanent rule book, thus, in effect, giving these time table rules (and also bulletins and circulars, when properly numbered) the same force and authority as the book. This rule 115 reads: "Rules 116 to 200 inclusive, in the time table, are supplementary to the foregoing. Special instructions amending or supplementing these rules will appear in the time table under general or division special instructions, or may be issued in writing over the signature of the superintendent, with the approval of the General Superintendent in the form of bulletins or circulars."

Train Order Rules

Rule 201 in the New Haven book refers to "train orders" but after that, the word "orders" alone is used.

Rule 206. This rule, on the Western Pacific, with 206 A, 206 B, 206 C, and 206 D includes definite rules for spelling, etc., in sending orders by telephone; the New Haven, however, in these rules retains the phrase "if desired" in several places. Western Pacific Rule 206 A allows a train detoured over the track of another company to retain its rights after having returned; and within block signal limits Rule 210 says that an order may be sent to the engineman, instead of being delivered personally by the conductor.

Rule 211. The Western Pacific book limits the use of form 19 as follows: "The 19 form of train order must not be used to restrict a superior train for an opposing inferior train, nor to meet extras, unless sent to the operator at the meeting or waiting station and issued for all trains concerned before reaching such station." The New Haven rule says: "A 19 order must not be used for Form F orders on single track nor to restrict the right or schedule of a train, except that it may be used for Form B orders, and (on double, three or more tracks only) for Forms E and F.

Rule 221. On the Western Pacific the train order signal stands normally at stop; on the New Haven it stands normally at proceed except when used as a block signal.

New Haven rules 224 and 225, regulate the use of the telephone dispatching circuit by conductors and enginemen.

Block and Interlocking Signal Rules

The New Haven includes in the definitions the following:

"In Rear of a Signal. Before reaching the signal."

"In Advance of a Signal. After passing the signal."

Following the definitions, there are ten pages of general signal rules, including two pages of colored illustrations showing the types of fixed signals in use (this being followed in a subsequent page by illustrations showing aspects more in detail). The New Haven definition of the indication of a caution signal is, "Reduce speed at once and proceed at speed not exceeding 25 miles an hour, prepared to stop at the next signal."

Rule 509. This rule is amplified, in both books, at considerable length. Rule 509c, on the New Haven, provides for "grade signals," automatic block signals marked with a yellow disk to indicate that the signal may be passed in the stop position by freight trains without the observance of the rule to come to a full stop.

"General Regulations"

This is the heading, in the Western Pacific book, of the chapter following that on interlocking. Rules 805, 1013 and 1038 read as follows: (805) Employees should cultivate a graciousness of manner, not only in dealing with the public, but also with fellow employees. Always have in mind the importance of answering questions promptly, cheerfully and otherwise exhibiting a spirit of friendly accommodation. Short, curt replies give offense. (1013) An engineman or fireman having less than the prescribed experience must not handle the leading engine of a passenger train. (1038) Should a [track] gang work between another gang and their flag or flagman, they will display a yellow flag between the rails 100 ft. from where working, in the direction of the other gang, as a warning to approaching trains. When a gang passes another gang at work, it is the duty of the foreman of the passing gang to ascertain what signals they have displayed and be governed accordingly.

To readers not familiar with train rules it should be stated that, as intimated at the beginning of this article, the variety of interesting points in these books is endless, precluding adequate notice even of the more salient features. This is true, particularly, of the non-standard portion of the books—Rules 700 to 1,600. The three rules quoted in the paragraph immediately preceding this one are merely examples taken at random. In the latter half of the book—of both books—the subject changes almost as frequently and as abruptly as in a dictionary. This will explain the absence of anything in the nature of a concluding summary.

Georgia Floods—Worst in 84 Years

Important railroads blocked two weeks—Roadway and bridge damages amount to millions—Six-hundred-mile detours

THE Atlantic Coast Line announced on Monday, February 2, the resumption of direct through train service between Richmond, Va., and Jacksonville, Fla., after an interruption, due to widespread floods which had blocked the road in Georgia, of about two weeks, necessitating detours of unprecedented length, and lengthening by about 24 hours many important passenger runs. And the fortunes of this road were not different from those of the Seaboard Air Line for similar distances; the other roads in the flooded territory had troubles of the same kind, though less extensive. The floods are declared to be the greatest in that region since 1841. Long-continued rains in January sent torrents of water from the lower Blue Ridge highlands across the plains to the sea and to the Gulf of Mexico, washing away bridges and flooding tracks across whole states, the abnormal conditions extending north to Virginia and west along the Gulf coast. The railroads from Atlanta southward on the high land between the Flint and the Chattahoochee rivers were immune, and the lines from Macon to Jacksonville were open at all times.

The destruction was spread over a very large mileage of railroad and repair forces, working at highest pressure, began restoration at many points, while blockades at other points were still unmanageable, the floods receding very slowly; so that roadway officers are expecting to have all lines passable by February 9.

Highways have, of course, suffered greatly, and some towns have been marooned for days, but no loss of life has been reported. Towns prominently mentioned are Ludowici, Dover, Townsend and Newton.

The most costly single railroad break was near Doctortown, Ga., south of Savannah, where on January 21 the abutments of the Atlantic Coast Line bridge over the Altamaha river were weakened and several miles of track inundated. The line from Savannah to Jesup was closed for about two weeks, and for a part of this time the suspension of traffic extended northward to Yemassee, S. C.

During the first few days of the flood the Atlantic Coast Line ran its southbound through trains from Florence, S. C. by way of Augusta to Atlanta (over 300 miles from Florence) and thence via Macon and Albany to Jacksonville, a total deour of over 600 miles. Later these trains traveled on their normal route to Savannah and thence via Macon to Albany over the Central of Georgia. At Albany they returned to A. C. L. rails.

The Seaboard Air Line diverted its Florida trains at Hamlet, N. C., to its own line to Atlanta (324 miles from Hamlet), and from Atlanta they were run by the Southern to Macon and thence by the Georgia Southern & Florida. The Seaboard's first trouble was at the Altamaha river on the 22nd. The officers expect to restore this line by February 7. Since Tuesday of this week S. A. L. trains have been using the Atlantic Coast Line between Savannah and Jacksonville.

The Southern Railway was blocked between Macon and Atlanta January 19 and 20, and between Jesup and

Lumber City from January 19 to 26. The Central of Georgia had a washout between Macon and Fort Valley on the 18th, but resumed service on the 20th. Its line between Macon and Savannah was closed to passenger traffic from the morning of January 20 until the evening of January 26 and there were also short interruptions on various branch lines.

All lines entering Brunswick were closed on account of high water for varying periods, but were opened on February 2.

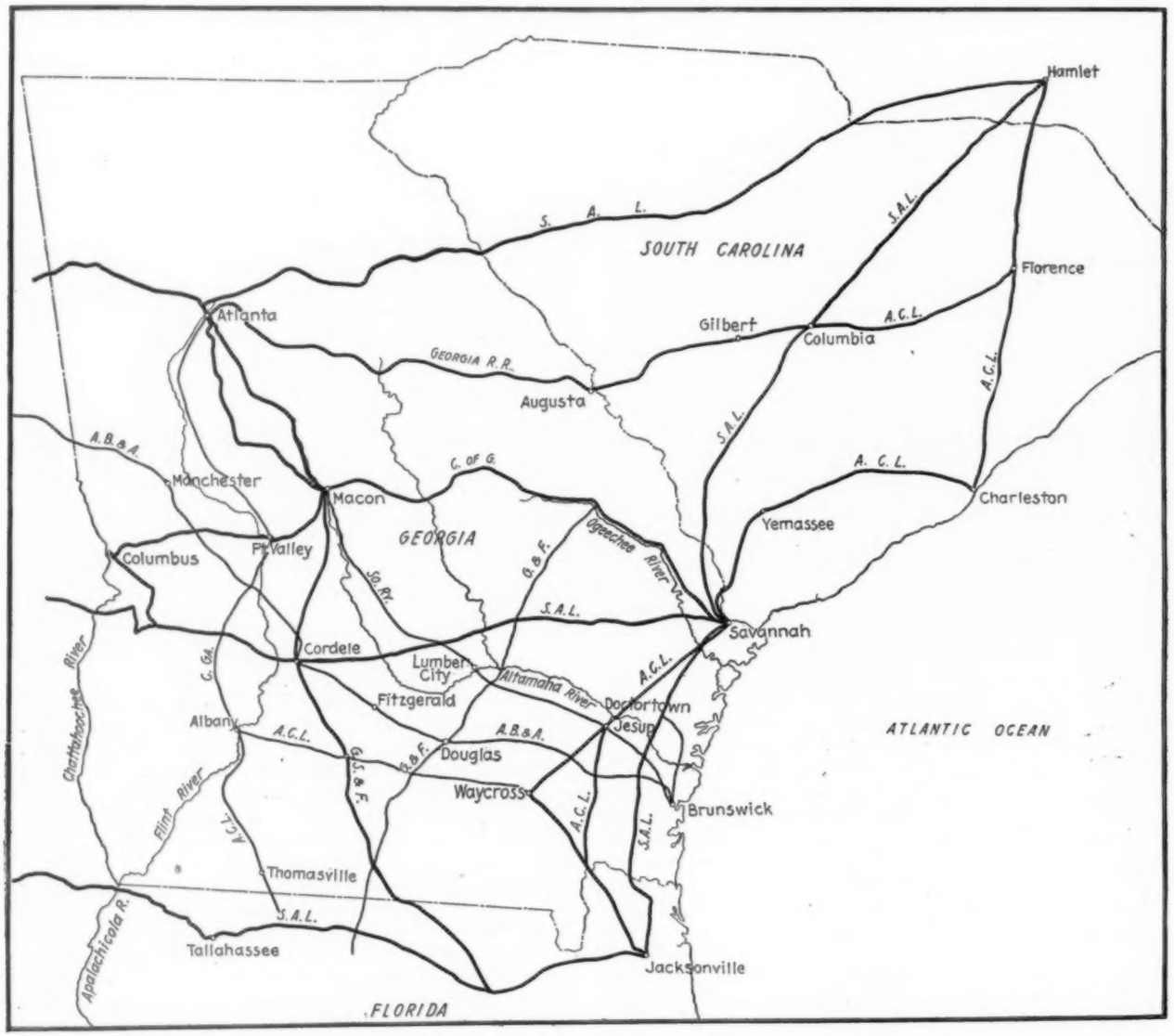
The Atlanta, Birmingham & Atlantic was blocked between Manchester and Fitzgerald from January 19 to the 22nd. The Georgia Southern & Florida had several washouts near Vienna on the 18th, but these were soon repaired. The Georgia & Florida was in trouble near Douglas for several days.

Railroad traffic suffered also along the Gulf coast from Tampa, Fla., to New Orleans, and Tallahassee, Fla., was marooned from all connections to the north for about a week.

All traffic had to move over the Seaboard Air Line from there via Jacksonville, the crossing of the Chattahoochee river being impassable.

All rail lines crossing the Chattahoochee river south of Atlanta had to detour to the bridge at Columbus, Ga., where the Central of Georgia crossing was the only spot not flooded. Train service between Atlanta and New Orleans was demoralized at many points.

Much freight as well as passenger traffic was detoured. At Macon on the 31st it was said that most of the freight congestion in that region had been cleared up.



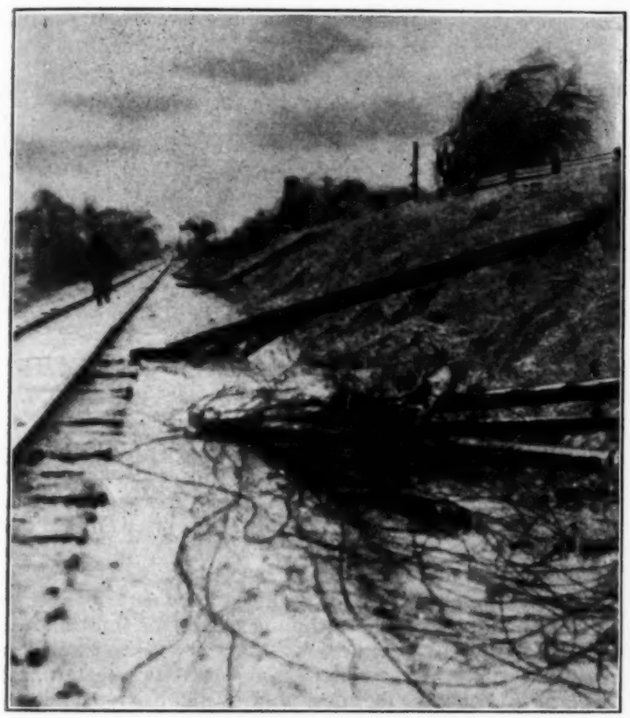
Principal Lines of Railroad in Georgia Affected by January Floods and by Re-routing of Trains

THREE UNNECESSARY DEATHS. W. H. Holman, an engineman of the Atlantic Coast Line jumped off his engine (train No. 57, second section) near Manor, Ga., on January 21, and was fatally injured; and the fireman could give no explanation of the strange act. Holman had set the brakes in emergency and then had leaped off without a word to the fireman. It is conjectured that he imagined that he saw some danger ahead. Engineman John Wrassman and Fireman Harry Heron, of the Pennsylvania, jumped off their engine (a westbound freight) near Greenfield, Ind., on January 18 and both are reported killed or fatally injured. In this case there was actual danger and Wrassman had set the brakes to avoid striking a freight train in front; but his train stopped before it reached the one ahead.

Moving Trains Without Wire Service

Middle-western roads show ingenuity in overcoming great handicaps during sleet storm

ONE of the worst sleet storms ever experienced swept over the central west shortly before last Christmas, virtually wiping out all wire communication, and imposing a severe burden upon the operation of the railroads in that territory. The manner in which the railroad officers and employees kept their lines



A Scene of Winter Destruction

open and their trains moving with remarkably short delays and without accidents constitutes a striking tribute to their ability and ingenuity. Many of the extraordinary methods which they were forced to adopt to avert the complete tieup of their lines are interesting. We are able to describe some of them through the courtesy of the various officers in the affected districts of the Illinois Central, the Chicago, Burlington & Quincy and the Missouri Pacific.

The storm was most severe over an area 175 miles in length and 110 miles in width. For approximately 36 hours before the temperature fell to the freezing point, rain had fallen almost continuously. As the temperature dropped, ice began to form on the wires and trees until in the evening of December 18, wires and limbs of trees were covered so thickly with ice that they began to break. Throughout the night of December 18 the sleet continued to accumulate to such an extent as to practically destroy 95 per cent of the trees and telegraph, telephone and electric light wires, together with the poles which had held them. A test made on the Springfield division of the Illinois Central showed that there was an accumulation of 1¾ lb. of ice per foot of exposed wire or approximately 4⅘ tons of ice per mile of wire. Through this destruction of their telegraph wires the railways were confronted with the problem of operating their trains entirely without telegraph train orders.

The problem was met on the Springfield division of the Illinois Central by handling trains entirely on timetable rights. Train dispatchers were started from headquarters on the first available trains to establish temporary headquarters at the first points where they found communication possible. Trainmasters and traveling engineers also went on the first trains, establishing temporary headquarters at the different intermediate terminals on the division. By sending orders, instructions and other communications to southbound trains on regularly scheduled northbound trains, it was possible to operate passenger trains on a considerably delayed schedule during the first

1¾ lb. of Ice Covered Each Foot of Wire

hours of the storm. The loss of telephone and telegraph wires was not the only difficulty experienced since all of the color light and semaphore signals, together with the interlocking plants, were completely out of service. The storm was weathered on the Springfield division without a train accident or personal injury of any sort.

On the Illinois division of the Illinois Central the same plan was followed—as many repair gangs were placed on the lines as possible with orders to restore one wire for telegraphing immediately, leaving the signal wires as well as the other telephone wires for later repair. The trains were moved on the single track line between Gilman and Clinton under flag protection, flagmen and officers going ahead on motor cars. On this division after the line had been cleared of trains which had been longest delayed, a

train order was put into effect at Clinton reversing the rights of north bound first-class trains, giving the southbound trains right of track for a period of 36 hours. This was done to permit the southbound trains to leave Gilman on time, allowing the northbound trains to move against their schedules without train order. Northbound trains were being more or less delayed on the St. Louis terminal and Springfield divisions so that it was not possible for them to leave Clinton on their scheduled departing time anyway. After this was done little difficulty was experienced in moving trains over the single track territory and by 4 p.m. on December 19 train service was practically re-established, notwithstanding the fact that no communication had then been opened up. This territory is one of the heaviest single track districts on the Illinois Central, having approximately 30 train movements per day. On the Wisconsin division of the Illinois Central the first move was to obtain an accurate check of wire and line conditions. Dispatchers covered the entire distance on passenger trains, making reports to division headquarters, by mail to the first open office where they were forwarded by wire. Arrangements were then made to run trains on schedules, filling each schedule on the timetable with at least one section. With dispatchers distributed over the territory in which no wires were available train orders were sent by passenger trains to opposing inferior class trains.

The Burlington was hit most severely in the territory between St. Louis, Mo., and Hannibal. On this line 10 regular passenger trains in each direction and 8 regular freight trains are operated daily. Under timetable rules nothbound trains are superior by direction to trains in the same class southbound so that the opportunity to move southbound trains depended upon the regularity of adherence to schedule of those going in the opposite direction. The problem was most severe at St. Louis where departing train schedules were so close together at various times during the day that any delay to an outbound train would set its schedule close to or behind the schedule of the following train, so that the southbound trains which were waiting at meeting points might find a northbound train so late on its own schedule that when it did arrive the southbound train would still be unable to move on account of the closely following northbound train. The practice of operating the double track line between St. Louis and Machens without orders was followed successfully although trains were delayed somewhat by reason of the automatic signals being out of service through freezing. However, the automatic signals of the light type between Louisiana and Hannibal, although without power for seven days, gave excellent service on their storage batteries. The southbound trains used various means of flagging against overdue trains, principally by section foremen or signal maintainers carrying flagmen on motor cars at a safe distance in advance of their trains. In some cases where a highway was free of trees, wires and poles and parallel to railroad tracks, flagmen were carried ahead by automobiles during daylight hours. The Burlington was particularly successful in anticipating closely the probable departure of the northbound trains from the St. Louis terminal which was badly congested, and in using an officer to ride one train and leave written instructions with operators at Machens and points north to hold following trains until a certain time, continuing north until he found an opposing train, allowing it this time. This really amounted to dispatching by train rather than by wire.

One of the officers would leave St. Louis on the 2:15 p.m. train and after checking the situation and securing the best information as to when the 7:30 p.m., 9 p.m. and 11:55 p.m. trains would probably depart, leave time orders with the operator at the end of the double track to hold these trains until a certain time. He would continue north until the four afternoon inbound trains were found, delivering instructions to the first three and accompanying the fourth train back to the double track where all trains were free to move. Freight movement was almost entirely discontinued during the first 24 hours following the storm, after which the usual number of freight trains, averaging 10 each way, was run.

Aside from the loss of 35 miles of poles and wire on its Eastern division between St. Louis and Jefferson City, the "bottle-neck" of the road, the Missouri Pacific's greatest difficulty was the congestion that developed on the St. Louis terminal in and around the Union passenger

Wires and Poles Destroyed by Sleet on Illinois Central

station. That congestion was made worse because of the pall of smoke and fog which settled down over the city and made it impossible for trainmen to see the signals at a distance of more than a few feet. The fact that all railroads operating in and out of St. Louis were affected alike tended to increase the confusion, as did the extra traffic due to the Christmas season.

It early developed that it required anywhere from three to seven hours to get an incoming passenger train into the Union station from either Washington avenue station or Tower Grove on account of congestion in the terminal. Therefore, one of the first things the Missouri Pacific did was to charter a fleet of motor buses and hold them in readiness at Tower Grove and Washington avenue. Incoming trains were met at those points by officers, and passengers were unloaded and taken into the Union station in a very few minutes in the buses. This enabled hundreds of passengers to make connections with outbound trains which they otherwise would have missed. The buses were kept available day and night throughout Friday night, Saturday, Saturday night and Sunday.

A business car was moved into the Union station and set on one of the passenger tracks near the station master's office. Two telephone wires were run into this car and a porter and a cook installed to provide sandwiches and coffee all day and night. This business car was made the base of operations and from it shifts of officers and men were located at the Union station, at the Washington avenue station, at Tower Grove and Broadway passenger stations and in the Rankin passenger terminal yards and at the roundhouse.

Constant running records were kept on the arrival and departure and location of all trains being operated. Dead freight had to be tied up but live stock was picked up wherever found along the line and run into the terminal in extra trains dispatched as second and third sections of passenger trains. Division officers rode all trains between Berger and Grays Summit where the situation was worst and a considerable amount of traffic was moved.

Wood Preservers Hold Convention

Recent developments in science of timber preservation given important place on the program

NEW processes for the preservation of timber, improved methods of treatment, economies in plant operation and records of service in the use of treated wood comprised the principal subjects discussed by the twenty-first annual convention of the American Wood-Preservers' Association which was held at the Congress hotel, Chicago, on Tuesday, Wednesday and Thursday of this week. As in previous years the program consisted of the reports of regular standing committees of the association and of papers prepared by individual members which reflected the close co-operation maintained between the association and the staff of the Forest Products Laboratory of the United States Department of Agriculture at Madison, Wis., in the advancement of the science of timber preservation and the conservation of the nation's forest resources. E. J. Stocking, Chicago, president of the association, presided over the various sessions.

At the closing session the following officers were announced as having been elected for the coming year: President, S. D. Cooper, assistant manager of treating plants, A. T. & S. F., Topeka, Kans.; first vice-president, C. F. Ford, supervisor tie and timber supply, C., R. I. & P., Chicago; second vice-president, O. C. Steinmayer, manager, Canada Creosoting Company, Toronto, Ont.; secretary-treasurer, P. R. Hicks, manager Service Bureau, American Wood Preservers' Association, Chicago. Members executive committee: E. S. Park, vice-president and general manager, New England Wood Preserving Company, Nashua, N. H.; Galen Wood, chemist, Port Reading Creosoting Plant, C. R. R. of N. J.-P. & R., Port Reading, N. J.

Zinc Chloride and Petroleum Impregnation in One Operation

One of the most important developments in the timber preservation industry that was recorded in the proceedings of this convention was the discovery of a process for impregnating timber with zinc chloride and petroleum in one operation, the pertinent feature of this development being the emulsification of the zinc chloride solution and the oil whereby the ties or other timbers may be subject to treatment with an emulsion of the two materials. Heretofore, efforts to carry out treatment with zinc chloride and oil necessitated two separate stages during which the timber was treated in turn with one material and then the other.

The report on this subject was presented by A. M. Howald, senior industrial fellow, Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa., who conducted the experiments in the laboratory and also supervised the treatment carried out according to this process in a 10-tie test cylinder in the Atchison, Topeka & Santa Fe timber preserving plant at Somerville, Tex. Examination of ties treated according to this method indicates that satisfactory impregnation of both materials is being obtained. Estimates of cost based on the experiments carried on thus far, assuming an impregnation of 8 lb. of oil and ½ lb. of zinc chloride, with petroleum oil at four cents per gallon and zinc chloride at six cents per pound, indicates a cost of 7.175 cents per cubic foot of timber treated, including the cost of the power required for emulsifying the materials. This investigation is being continued by the treatment of a lot of 3,500 ties at the Somerville plant.

Is the Treatment and Use of Partly Decayed Ties Justified?

Another pertinent feature of the program was a paper by W. H. Long, forest pathologist, Bureau of Plant Industry, United States Department of Agriculture, Albuquerque, N. M., which reviewed the results of experiments made on ties evidencing incipient decay for the purpose of ascertaining whether ordinary treating processes would completely sterilize the affected parts. These investigations covered specimens of several species of fir, spruce and yellow pine and led to the following conclusions:

Ties of high altitude species given a treatment with preliminary steaming were thoroughly sterilized.

Texas pine ties were found to be sterilized in most cases.

The usual treatment given to western pine will have to be modified somewhat in order to sterilize all these ties.

The results obtained from semi-treated rot proved that the preservative did not kill the various kinds of fungus present and therefore raises some doubt as to the value of sound ties where the heartwood is only semi-treated.

The bearing which these tests have on the general subject of tie treatment was succinctly stated in this paper, the statement being abstracted below as offering some food for thought to all who are concerned with the purchase, treatment and use of ties.

In view of the rapidly decreasing supply of timber, which is being cut about four times as fast as it is grown, all users of wood should put forth every effort toward conserving what is left. Is it not time that this association began to give serious consideration to the using of slightly infected ties whose physical properties are but little, if at all, injured by the small amount of incipient rot present? Why should thousands upon thousands of slightly defective ties be left in the woods to rot and greatly to increase the fire hazard during a long period of years when much of this timber can be sterilized even by the present treatments?

The question immediately arises as to the maximum amount of rot in a tie which should be allowed under the heading of "ties physically uninjured but slightly infected with rot." This is a question that can safely be left to the physicists. I would suggest as a starting point for discussion that the maximum amount of decay allowed in a tie be 1½ in. in diameter. Do you believe that a tie would be materially weakened if a hole 1½ in. in diameter were bored through its center from end to end? Such a hole would certainly weaken the tie, if it be weakened at all, more than a similar core of slightly infected wood. In fact, very few ties that show a maximum of 1½ in. in diameter of defect in one end would show any defect in the other. All ties that are to be treated should be edged before treatment, otherwise the presence of rot in the tie might not be noticed. All stains and discolorations in the heartwood as well as visible rot pockets should be classified as rot.

Some may claim that when you once allow a slight

amount of decay in ties your inspector will become careless and accept ties which contain more than the maximum amount of rot. This same argument could be used against inspectors when they are classifying the ties as to size. Do you not believe that the time is near at hand, if not on us, when railroads which annually use millions of feet of timber should begin to conserve this rapidly diminishing supply along the lines indicated in this report?

Discussion

J. H. Waterman, of the Burlington, pointed out that Doctor Long did not recommend that the railroads buy ties containing rot, to which Doctor Long replied that that was exactly his position. He said that his investigations were of value primarily as a forecast of developments which may be imposed on purchasers of ties in the future, when the forests are more nearly exhausted. Several other speakers pointed to the difficulties with which the railroads would be confronted if the bars regarding decayed timber were let down.

Report on the Preservation of Car Lumber

Will there come a time when car building companies will operate properly equipped timber treating plants for treating lumber put into cars? Yes. The Committee on Car Lumber thinks that just as soon as a demand is created by the railroads for treated wood in cars, the car building companies will install treating plants as a requisite part of their own equipment, or make arrangements to have commercial treating companies perform this function. But, in the meantime certain other schemes are being tried out. Several car companies are endeavoring to give a so-called creosote treatment to some car material, one railroad having specified that the decking for some stock cars shall be sprayed top and bottom with a creosoting oil. The committee does not recommend such a treatment as being very effective, yet it should be considered a step in the right direction. It is an attempt to do something which is certainly better than nothing. This same railroad used creosoted decking and sills in some stock cars. Other railroads have specified that certain parts of cars be painted with creosote oil while being built. All of these schemes should lead to a better understanding of what the best preservative treatment will give.

Open Tank Treatment Not Favored

The committee desires to emphasize at this time its belief that it would be inadvisable for anyone to use open tank methods for the treatment of car timbers in a wholesale way. The right course would be to study the question of production, utilization and adaptability of present standard pressure preserving processes for use in the treatment of wood for cars. If there is a genuine desire backed by economic necessity to treat wood that goes into cars, the right program is to use equipment capable of giving efficient and economical preservative treatment and to eliminate consideration of the inefficient processes sometimes used in the past.

It should also be said that few railroads and car companies have as yet grasped the magnitude of the program necessary to provide treated wood for cars, nor have they fully visualized the economies that are possible through such a policy. Cars are bought in such quantities and such prompt delivery is usually specified that any policy adopted to provide treated wood for new cars in particular should take account of the large quantities of treated lumber to be supplied in a short space of time.

Another factor that will enter into the situation is the necessity for a fully prepared program to render prompt preservative service, since few cars to be built of treated wood will be specified if it will cause any delay in the delivery of cars. Preservative treatment of wood in cars must be available in such a manner as not to interfere with prompt construction.

So far as stock cars are concerned, there is no reason for not creosoting every stick of timber used in such cars with the possible exception of the letter boards. One central western road has just recently treated some stock cars in this manner. Nor is there any reason for not creosoting all the lumber used for gondola, flat and coal cars, except the number boards. As for box cars, it would appear that the nailing strips on steel underframe, sills on wooden underframe cars, and running boards are the only parts of such cars that could be creosoted.

As to Refrigerator Cars

As for the preservatives that are available for the treatment of refrigerator cars, creosote seems to be outlawed for use on any part thereof. It is not so much that it has caused any difficulty in the few cars already built and in service, but rather that a prejudice would exist among shippers against any transportation system using creosoted refrigerator cars. It is too high a risk for anyone to take, regardless of the possible savings due to the elimination of decay.

Therefore, the committee recommends the following as being the wooden parts of cars that can and ought to be treated with creosote:—

Stock	All wooden parts except letter boards.
Gondola, Flat, Coal	Side boards, Decking, Nailing strips, Sills, if of wood
Box or House	Nailing strips, running boards, wood sills, if any.
Refrigerator	None.

Some discussion has taken place relative to using water soluble salts for the treatment of wood for cars. They would have the great advantage of being absolutely odorless, toxic, cheap and readily available. In considering water soluble salts for these purposes certain fundamentals must be remembered. To treat any car lumber thoroughly it should be air or kiln dried. That is axiomatic and should be considered. Also to render the wood treated with water soluble salts available, wood thus treated must be air or kiln dried after treatment; otherwise it will be impossible to paint such treated wood, because of the high water content thereof. If this difficulty be eliminated, some future may exist for water soluble preservatives for wooden cars. Furthermore the leaching out of the preservative is liable to render the treatment ineffective.

It may be said that the use of treated wood in cars has to be considered from several angles:

1. New cars.
2. Rebuilt cars.
3. Heavy repairs at principal shops.
4. Minor repairs at small outlying shops.
5. Repair of treated cars on foreign lines.
   (a) Heavy repairs as in (3).
   (b) Minor repairs as in (4).

When the car company installs its own plant for treatment of lumber, no great problem of distribution arises. However, when a railroad builds its own cars at various points and has treating plants far distant, the problem becomes more serious. It is the consensus of the committee that to get the best results in the matter of cooperation and elimination of lost motion the treating

plants should be located at the car shops. In this way it will be possible to save much rehandling and to eliminate serious delay. As for facilities requisite for rebuilding a series of cars, as often happens, any plant equipped for building new cars would likewise be in a position to handle rebuilt cars.

For making heavy repairs at principal shops, it would be practical, having treating plants at such shops, to frame and treat special timbers on short notice, so as to avoid undue delay in repairing such cars. This leads us to believe that small units, say, cylinders 6 ft. or less in diameter and from 40 to 50 ft. long, should be satisfactory for the larger repair centers. Such plants would not require a large personnel and with steam and electricity already available the outlay would be a minimum.

The fourth classification offers the greatest difficulty,—how to handle the minor repairs at outlying shops where it would never pay to install even very small treating plants. The committee is not in favor of recommending open-tank plants for such locations, for the smaller the shop the less supervision, and without very intelligent supervision open-tank treatment is not to be recommended.

The best solution of the problem seems to be to store some treated stock at such outlying shops and call on the larger shops when special timbers are required. This may cause some delay in repairs, but it is no more likely to be serious than the present situation where there are so many patented and special attachments on cars, causing delay awaiting renewal parts from the larger shops.

The above discussion of problems would be sufficient if all cars remained on home lines and were repaired by home forces. Unfortunately such is not the case. Repairs of both third and fourth classes would be made on foreign lines. What are foreign lines going to do? It would appear that nothing in the present rules would require foreign lines to repair cars with treated timber. Furthermore, they are not likely to feel bound to return the cars to the home lines without revenue lading in order that the home line may repair the car with treated wood. This angle of the problem warrants much study from an operating standpoint, and is likely to be a serious matter for officers to decide. In the case of the private car refrigerator lines, or those lines which are fortunate enough to be able to keep a large percentage of their own cars on their own lines, the problem is not so serious.

Discussion

In the discussion of this report considerable additional information was offered indicating that a number of roads are beginning to treat timber for car construction in considerable quantities. J. H. Waterman and F. S. Shinn (C. B. & Q.) described the satisfactory results which have followed the treatment of a large number of stock cars and smaller numbers of other types of cars on that road. R. S. Belcher (A. T. & S. F.) stated that that road had authorized the treatment of certain timber for coal, flat and stock cars and was experimenting with its more extensive use. It was also reported that the Central of Georgia has been treating car sills for flat and gondola cars for more than six months and that it has planned to extend this treatment to stock cars in the near future.

Other Subjects Discussed

Further progress in the development of the process for treating ties with petroleum creosote mixtures is evidenced by the development of specifications for the control of this method. The Committee on Ties presented a number of revisions and additions to its existing specifications for creosote treatment which would make the specifications applicable to the mixture treatment. Specifications were the principal subjects for report by two other committees, namely, the Committee on the Preservative Treatment of Douglas Ties and the Committee on the Preservative Treatment of Yellow Pine Ties, which presented complete specifications for adoption by the association.

The Committee on Preservatives presented a brief review relative to preservative materials other than creosote or zinc chloride which are being promoted for use in timber preservation. Most of these are proprietory materials having greater application in Europe than in this country. One offering some promise is wood tar creosote obtained from hardwood tar, of which approximately 20,000,000 gal. is produced annually in this country. This

Average Annual Tie Renewals Per Mile

	A. T. & S. F.	B. & O.	C. B. & Q.	C. M. & St. P. Eastern Lines	C. R. I. & P.	C. C. C. & St. L.	D. L. & W.	Ill. Central	K. C. Sou.	Mich. Cent.	N. Y. C. East	N. Y. C.-West	Nor. Pac.	Penna.	Union Pac.	Lehigh Valley	Great Northern	M. K. & T.	M. St. P. & SSM	S. P. Atlantic Sys.	C. I. & L.		Average of all roads
1900	192	...	...	...	...	...	216	...	...	269	...	...	341	...	261	336	191	...	...	281	...	...	258
01	166	248	...	210	...	...	278	...	...	241	228	...	324	289	242	301	192	404	...	278	...	...	260
02	205	196	...	213	...	...	201	...	...	282	210	...	311	257	229	108	153	401	...	293	...	...	230
03	241	192	...	144	...	...	223	...	...	237	207	...	314	237	186	307	157	437	...	269	...	...	240
04	271	225	...	121	...	...	227	...	...	141	243	...	280	215	303	211	153	460	...	197	...	...	238
05	256	247	...	97	...	369	247	...	...	148	175	246	286	262	266	196	134	387	...	233	...	...	236
06	197	245	...	116	...	392	223	...	...	173	176	257	280	228	374	155	102	344	...	339	...	...	240
07	288	254	...	94	...	301	240	...	...	110	263	261	346	247	317	184	194	358	...	258	...	...	248
08	301	266	...	176	285	275	277	...	...	110	225	266	251	194	258	172	198	292	...	244	...	...	237
09	293	264	...	202	276	198	235	...	...	272	220	250	296	245	253	195	199	365	...	259	310	...	255
1910	281	218	...	203	246	384	169	...	462	176	249	250	292	236	267	177	233	449	...	289	257	...	268
11	272	206	...	159	265	388	223	290	432	285	229	260	284	218	246	141	208	466	...	267	396	...	275
12	224	278	...	163	209	318	231	267	294	208	219	265	287	275	171	164	180	401	...	299	385	...	254
13	194	259	...	208	221	282	281	286	350	305	259	295	317	260	231	267	234	342	258	271	360	...	273
14	180	220	231	190	243	269	255	266	351	284	271	242	306	284	248	232	228	324	287	295	365	...	265
15	210	309	227	183	249	277	279	253	354	335	243	301	276	289	238	289	227	325	256	384	231	...	273
16	193	310	203	251	222	212	195	228	338	357	207	273	247	241	253	286	248	382	196	367	289	...	259
17	153	238	192	135	183	202	157	179	240	227	197	270	292	197	196	178	244	235	228	196	145	...	204
18	151	194	194	228	155	205	121	161	237	197	199	249	230	162	191	173	251	209	207	218	168	...	194
19	139	243	162	242	158	201	147	198	273	144	199	189	220	192	185	195	253	228	266	267	80	...	198
1920	163	255	178	146	190	156	159	250	290	126	164	183	242	200	206	116	213	302	289	389	167	...	208
21	148	229	177	161	169	194	166	260	311	154	220	196	231	228	184	133	184	233	342	391	146	...	211
22	158	206	167	188	151	143	137	249	375	222	199	196	167	223	203	77	191	183	301	319	146	...	199
23	128	207	169	225	140	191	102	199	347	206	201	147	177	202	195	91	228	179	323	294	144	...	195
Per cent treated ties used:																							
in 1922	88	75	92	...	92	87	81	78	51	90	66	79	38	65	100	79	52	93	22	80	...	...	...
in 1923	...	78	...	90	98	80	87	82	58	56	83	88	18	...	100	96	35	98	17	65	...	...	...

Heavy horizontal lines show beginning of the extensive use of treated timbers.

material has not yet been standardized and thus far has not been developed on a commercial basis for timber preservation. The report also included some technical studies of the toxicity of petroleum oil and coal tar creosote.

The Committee on Material Handling presented a brief review of current developments in equipment for handling ties and timbers at treating plants, the most distinctive feature of which was a description of the hammer-head crane used by the Oregon-Washington Railroad & Navigation Company in its plant at The Dalles, Ore. This crane operates on rails spaced 22-ft. center to center and stands astride of a standard-gage track with sufficient clearance to allow the crane to pass over cars standing on this track. This crane handles tie packages of 69 ties each to and from piles 25 ft. high and has an operating radius of 90 ft. The cost of handling ties with this crane is about 20 per cent of the labor cost of building the package units and loading the ties on the trams.

The Committee on Track Service Records presented a table of the average tie renewals per mile on 21 railroads for the years 1900 to 1923, inclusive, which is reproduced on page 367.

C. Marshall Taylor, superintendent of timber preservation for the Reading and the Central Railroad of New Jersey, presented an account of his observations in the field of timber preservation made during the course of a trip to Europe during the past summer. Mr. Taylor's conclusions are that American practices are far in advance of those generally prevailing in Europe and that there was in consequence little of European practice that could profitably be applied in this country.

Temperature and moisture changes in wood under steaming treatment was the subject of a paper by R. M. Wirka, engineer forest products, United States Forest Products Laboratory, Madison, Wis. Sections of yellow pine logs from 6 to 13 in. in diameter were used in these experiments, the object of which was the development of facts concerning the effect of the moisture content, the diameter, the length of the vacuum period and the temperature on steaming operations. The paper concluded with a statement that further tests must be made before it will be possible to offer any specific recommendations as to steaming practices.

J. D. McLain, engineer in forest products, United States Forest Products Laboratory, Madison, Wis., presented a mathematical analysis of the economics of timber preservation. This comprised the derivation of formulas for determining the justifiable expenditures for the treatment of timber under specified assumptions as to the life of the treated and untreated timber. The paper included charts and tables to expedite the use of these formulas.

Suburban Traffic in North Jersey

THE North Jersey Transit Commission, appointed by the governor of New Jersey to make a study of the condition of suburban transit facilities in the metropolitan area of the state and to suggest improvements therein, has presented its report to the legislature. Its principal recommendation is that the passenger terminals of the various commuter-carrying railroads be removed from the Hudson River water front opposite New York to one or two central locations back of the Palisades ridge, which is about a mile from the river opposite lower Manhattan. From this central station or stations rapid transit trains would be operated through a loop extending from Jersey City under the Hudson to lower Manhattan, thence northward to about Fifty-seventh street, Manhattan, again under the Hudson to the Jersey side and back to the place of starting. It might be possible to arrange to operate the trains in existing New York subways for the portion of the route on Manhattan island.

This loop line would of course be electrified, and separate equipment would be necessary for it until such a time as all of the commuter-carrying railways of northern New Jersey are electrified, when it would be possible to operate the suburban trains themselves directly into Manhattan over the loop line without making it necessary for passengers to change cars.

In addition, the proposal of the Transit Commission includes a loop line for New Jersey connecting such cities as Hackensack, Paterson, Passaic, Montclair, the Oranges and Newark, with a line running down to the Jersey Coast. Existing transportation facilities between these communities are inadequate, and it is frequently simpler to travel from one of them into New York and out again than it is to attempt the journey between them direct,

The Commission points out that its recommendations are of a preliminary nature and that much more investigation will be necessary before the work can be undertaken. The report does not recommend any specific method of ownership or financing for the proposed lines. It is exhaustive only in its statement of the problem itself rather than the solution.

The relative sparseness of the population of Northern New Jersey when compared to areas of the east and north of New York City is noticed and the opinion expressed that this condition is due largely to the less satisfactory transit arrangements on the New Jersey side of the Hudson. It is pointed out that the suburban traffic of the Long Island Railroad which is electrified and has direct entrance into the heart of New York City increased 350 per cent from 1911 to 1923, whereas the traffic of the New Jersey railroads increased but 74 per cent in the same period. The report says:

"The railroads unaided cannot solve the entire problem, nor should they, since the proper solution requires a comprehensive transit system that will unite the present railroad systems so that passengers on any of the railroads can use a common facility that will enable them to be carried to their destination without transfer, or at least with the convenience of easy transfer rather than the cumbersome changing that now prevails. Furthermore, the state of New Jersey has a far greater interest in the problem than the railroads, because the future of the state is dependent in large measure upon the development of its transit facilities.

"The problem has been growing greater and greater through years that have been literally lost. During this time, because of a lack of thought on the part of the State of New Jersey for the future of its transit lines, an expense for improvements has been encouraged by the individual railroads which would have been unnecessary if there had been a comprehensive plan."

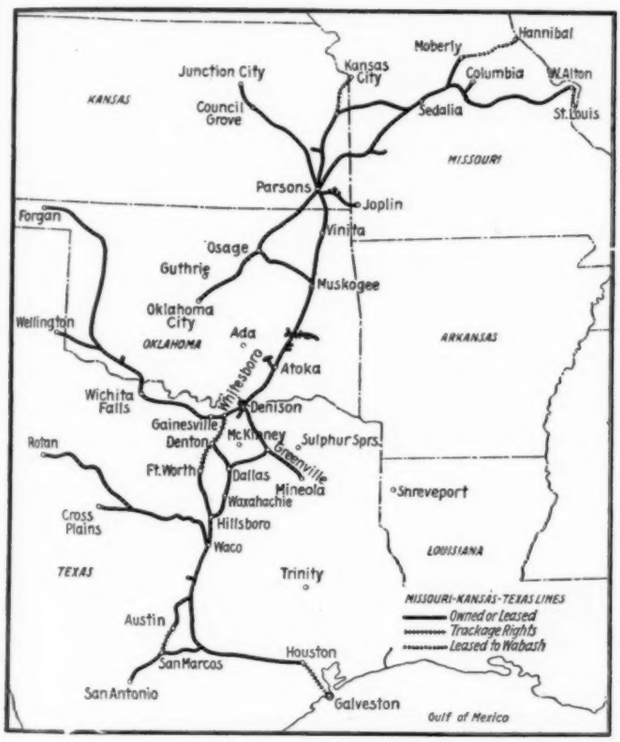
The principal commuter-carrying railroads in northern New Jersey are the Erie; the Central of New Jersey; the Delaware, Lackawanna & Western; the Pennsylvania and the West Shore.

Missouri-Kansas-Texas Prosperity

Consolidation rumors attract attention to property's excellent earnings and operating results

THE Missouri-Kansas-Texas took a place in the spotlight of publicity during the past week as a result of consolidation rumors. The rumor was that control of the Katy had changed hands, and that a merger of the property with the Kansas City Southern was approaching fruition. The rumors further had it that these were to form the nucleus of a new 11,000-mile system in the southwest, which would also include the Frisco and the Cotton Belt.

These rumors resulted in the following statement,



The Missouri-Kansas-Texas

issued by the bankers who were interested in the recent reorganization.

"Referring to rumors that there would be a change in the control of the Missouri-Kansas-Texas, it developed, upon inquiries at the offices of Speyer & Co., and J. & W. Seligman & Co., who were active in the reorganization of the Katy, that these bankers and others have known for some time that Kansas City Southern and banking interests affiliated with that company had acquired an interest in the stock of the Missouri-Kansas-Texas. It was pointed out that the mileage of the Kansas City Southern was about 843 miles and that of the Missouri-Kansas-Texas about 3,200 miles.

"It is understood that the bankers who financed the reorganization of the Katy not only have retained their holdings in the bonds and shares of that company, but have increased them since then, and they have no interest in the Kansas City Southern or Missouri Pacific securities. When questioned, these bankers would not deny that they have been considering possible combinations of railroads, but stated that their only interest is in the Missouri-Kansas-Texas property."

If these rumors did nothing more, they at least served to attract attention to the property, and to the extremely favorable earnings which it has of late been reporting. The immediate effect, at any rate, was a substantial increase in the price of Katy securities on the stock exchange. On Saturday, January 31, the day following the bankers' statement above quoted, the adjustment 5 per cent bonds were sold at prices between 87⅝ and 89. The preferred stock (on which on February 2, there was payable the first quarterly dividend of $1.25) closed at 85⅞, signalizing a rise during the week of 4⅝ points. The common stock closed at 35⅝, or 2⅝ points above its price at the beginning of the week. The prices quoted on Saturday were in each case the highest prices reached up to that time on these securities.

The Adjustment Bonds

The chief interest in the situation of Missouri-Kansas-Texas at present is with reference to its adjustment bonds and preferred stock. The Katy reorganization took effect on April 1, 1923. The old company had a complicated arrangement of security issues totaling over 30 in number and aggregating in value $146,543,142, on which interest and sinking fund charges were $7,429,376. The funded debt of the new company amounted to $108,000,000 with fixed interest charges totaling $5,000,000. In addition to this there were issued $57,500,000 convertible adjustment bonds with 5 per cent interest, totaling $2,875,000. The total of fixed interest charges, in other words, was substantially decreased although with the inclusion of the contingent interest charges the total of charges was greater.

There were various peculiar provisions relating to the adjustment mortgage bonds intended to combine the desire to have a good bond, and the desire not to burden the property unduly in the period following immediately upon the end of the receivership. Thus it was provided that the 5 per cent was to be paid only if earned. There was a further provision that in the period prior to January 1, 1925, even if the interest was earned, the directors might pay not less than half of it, and hold the remainder for capital expenditures. After January 1, 1925, the interest was to be cumulative. It has been paid regularly since the bonds were issued.

The new company has outstanding about $24,600,000 preferred, and $82,420,000 common. The preferred now receives 5 per cent dividends, this rate having been established by the directors in December, and the first dividend was payable February 2. The preferred stock is to become cumulative from January 1, 1928, at a rate of 7 per cent. It was noted above that the adjustment mortgage bonds are convertible. They may be converted into preferred stock to January 1, 1932, on a par for par basis. This explains why the preferred stock and adjustment bonds now sell at so nearly the same price, which situation presumably would not be justified merely by the fact that both now receive 5 per cent. If the Katy becomes able to put its preferred on a 7 per cent basis in the near future—and many believe that its directors will decide in favor of that course—the conversion feature will become considerably more important than it is now.

1924 Earnings

There is little that is left to be desired in the Katy's 1924 report of earnings. The interest on the adjustment mortgage bonds totals about 2¾ millions. The 1924 report shows a balance after interest on these bonds of no less

than $5,508,438, indicating that the interest was earned over 3 times, and showing an amount available for dividends on the preferred stock equivalent to about $22.39 per share. The 1923 report covered three months' operation of the old company, and nine months of the new. In the latter period there was a balance after interest on the adjustment bonds of $2,413,699. In other words, in the nine months' period the adjustment bond interest was earned twice, and there was available for the preferred about $10.00 per share.

The preliminary statement for 1924 follows:

	1924	1923	Increase or Decrease
Mileage operated (average)	3,193	3,360	—167
Operating revenues	$57,309,345	$55,987,918	$1,321,427
Operating expenses	39,732,035	43,628,319	—3,896,284
Available for interest	13,024,478	10,181,669	2,842,810
Interest charges including adjustment bonds	7,516,041	7,572,987	—56,947
Net income	5,508,438	2,608,681	2,899,756

Mileage

The Missouri-Kansas-Texas system now operates 3,188 miles of railroad. Its lines extend from St. Louis and Kansas City to the southwest, and serve such important producing or distributing centers as Joplin, Mo., Oklahoma City, Okla., Tulsa, Okla., Dallas, Tex., Fort Worth, Wichita Falls, Waco, San Antonio, Houston and Galveston. The road includes in its operated mileage of 3,200 trackage rights of 229 miles which it requires for its entrance both into St. Louis and Kansas City. Its main line between Whitesboro, Tex., and Fort Worth, 71 miles, is in the form of trackage rights over the Texas & Pacific. Trackage rights are used also between Austin, Tex., and San Marcos. Between Houston, Texas, and Galveston the Katy operates over the Galveston, Houston & Henderson, which is owned jointly with the International-Great Northern. About 30 per cent of the owned mileage in Texas is leased line.

Prior to the reorganization, the Katy operated nearer 3,800 miles of line, the difference representing principally lines owned by the former company which were not taken over by the new company. The former cross-link between Oklahoma City and Atoka, 131 miles, is now operated by the Oklahoma City-Ada-Atoka. The line from McKinney, Tex., via Greenville and Sulphur Springs to Shreveport, La., 182 miles, has become the Louisiana Railway & Navigation Company of Texas, and is owed by the Edenborn interests. A so-called "orphan" line entirely separated from the rest of the Katy system, between Trinity, Tex., and Colmesneil, 66 miles, with a cross-line from Weldon to Livingston, 48 miles, has become the Waco, Beaumont, Trinity & Sabine River. The Katy still owns the line between Hannibal, Mo., and Moberly, 70 miles, but it is leased to the Wabash, which operates it as part of its main line.

The Katy is distinguished among other things by the fact that it serves the greater portion of all the important oil refining centers of the mid-continent field. It has been the remarkable expansion in the prosperity of Texas and Oklahoma due very largely to oil that has so assisted the Katy, the Frisco, the Cotton Belt, and other lines in this territory. The oil traffic has been important to these carriers, although there is a belief in many quarters that the business has been so competitive as to keep down the ton-mile earnings unduly. Be that as it may, the growing population and expanding industry have made new markets, and it is presumably from that angle that the carriers have profited most.

The Katy's traffic is not diversified. In 1923, the latest year for which figures are at present available, the classification of traffic was as follows: products of agriculture, 17 per cent; products of animals, 5.5 per cent; products of mines, 26 per cent; products of forests, 6 per cent, and manufactures, 41 per cent. Refined petroleum and its products, included under manufactures, constituted in 1922 and 1923 about 21 per cent of the total tonnage. The tonnage of coal was the next largest classification and amounted to but one-half the tonnage of oil. Pipe line development in the mid-continent field has been such that the railroads there carry but a very small proportion of crude oil. Thus the Katy's total tonnage of refined petroleum and its products in 1923 was 2,433,980, but that of crude oil was but 179,485. The Katy received an average revenue of 1.427 cents per ton-mile, and its average haul was 248 miles.

The Missouri-Kansas-Texas System went into receivership in 1915 because it was unable to earn its fixed charges. Prior to the receivership too much of an effort had been made towards a paper showing, and the property was very much run down for lack of proper maintenance. The years of the receivership were devoted to building up the property so that today the Katy lines are in excellent physical condition in every way. It has been estimated that in the first six years of the receivership, that is up to 1921, nearly $18,000,000 had been spent in the form of capital improvement for roadway and structures, and some $12,000,000 for new equipment or for improvements to equipment, while at the same there were large sums devoted to maintenance. The increase in maintenance expenses is indicated in the increased ratio of such to total operating revenues or in the fact that in 1915 combined expenses for maintenance of way and equipment exceeded those of 1914 by 50 per cent, and in following years averaged two or three times as much as in 1914; in the high cost year of 1920 they were four times those of 1914.

The real test of rehabilitation comes in the effect on operating results and costs, particularly as reflected in the cost of conducting transportation. In 1923, the Katy had a ratio of transportation expenses to total operating revenues of 32.83, the lowest reported in at least a 10-

Missouri-Kansas-Texas—Comparison of Selected Operating Statistics

(First 10 months of 1924 with first 10 months of 1920)

	M-K-T			M-K-T of Texas			Southwestern Region		
Unit	1920 10 mos.	1924 10 mos.	Per cent Increase	1920 10 mos.	1924 10 mos.	Per cent Increase	1920 10 mos.	1924 10 mos.	Per cent Increase
Average miles operated	1,710	1,793	..	1,751	1,389	..	.....	32,531	..
Net ton-miles (millions)	1,901	1,808	— 5	1,176	1,055	—10	27,990	28,985	3.5
Car-miles per day	29.0	26.2	—10	18.0	21.2	18	28.2	28.8	3
Net tons per loaded car	23.6	22.4	— 5	24.4	22.6	— 7	26.1	24.5	—6
Per cent loaded to total car-miles	61.2	63.0	1.8	64.5	63.2	— 1.3	70.0	65.9	—4.1
Net ton-miles per car per day	418	370	—11	283	298	5	514	464	—10
Freight cars per train	41.3	54.4	32	28.7	40.9	42	34.9	37.6	8
Gross tons per train	1,416	1,891	33	1,016	1,433	41	1,321	1,376	4
Net tons per train	581	755	30	436	570	31	620	590	—5
Train speed-miles per train hour	10.9	12.4	14	10.0	11.9	12	11.1	12.0	8
Net ton-miles per train hour	6,354	9,388	48	4,356	6,779	55	6,884	7,061	2.5
Lb. coal per 1,000 gro. ton-miles	179	109	—39	233	123	—47	194	139	—28
Per cent Frt. Locos. Unserv.	23.8	23.9	..	28.1	16.4	..	25.8	19.7	..
Per cent Frt. cars Unserv.	7.2	4.1	..	4.2	11.5	..	6.4	8.7	..

Note: M-K-T figures include Wichita Falls & Northwestern in 1924 but not 1920.

year period. In 1924, the transportation ratio was reduced to 31—one could hardly ask for a better result.

Operating Results

The results of the rehabilitation program began to show in 1920, and on the Texas lines in particular in 1921. The work done up to that time has been continued to an extent that a very interesting and instructive picture is presented. This may be shown in the form of a comparison of selected operating statistics comparing the latest figures available for 1924—those for the first 10 months—with similar figures for the first ten months of 1920. Furthermore, the brief analysis is made to include a comparison between the Katy and its neighbor roads in the Southwestern region. The Katy reports its operating statistics to the Interstate Commerce Commission for the Missouri-Kansas-Texas and Missouri-Kansas-Texas of Texas separately. The comparisons of selected operating statistics show first the reduction in mileage of the Katy system. Thus the Katy's average mileage operated in the first 10 months of 1920 was 1,710, but in 1924, 1,793. Actually, this is a reduction because in 1920 the Wichita Falls & Northwestern's 328 miles were reported separately whereas they are now included. The Katy of Texas mileage shows a reduction from 1,751 to 1,389. This accounts largely for the decrease in the amount of business done. Thus the Katy shows a decrease in net ton-miles of 5 per cent, and the Katy of Texas a decrease of 10. This looks bad as compared with the increase of 3.5 per cent in the net ton-miles of the Southwestern region as a whole, but figures of net ton-miles per mile of line, show that the Katy system traffic density has increased 15 per cent. The Katy then is much more than holding its own from a traffic standpoint.

The figures relating to car performance do leave something to be desired, particularly as relates to the decrease from 29.0 to 26.2 in Katy car-miles per day. However, the Texas lines at the same time increased their figure from 18.0 to 21.2. For the region as a whole there has been a slight change from 28.2 to 28.8. Both the Katy and the Texas lines, as well as the region as a whole, show a decrease in the average load per car. The Katy shows net ton-miles per car day 11 per cent less, and the region 10 per cent less, but the Texas lines show an increase of 5 per cent. It might appear on the basis of these figures that car miles per day is something to which the Katy management could afford to devote more attention.

Motive Power Utilization

The really remarkable change in Katy operations has been in connection with its train loading and motive power utilization. This is reflected in several figures. Thus, in 1924, as compared with 1920, the Katy moved 32 per cent more cars per train, thereby effecting an increase of 33 per cent in the gross tons per train, and of 30 per cent in net tons. Further, it moved its trains faster; the increased loading was not at the expense of train speed. The train speed, or miles per train-hour, in 1920 was 10.9, but in 1924 no less than 12.4. The result of these several factors is indicated in the net ton-miles per train hour, 6,354 in 1920, and 9,388 in 1924, an increase of no less than 48 per cent.

The Katy of Texas does not succeed in getting as heavy train loading or in moving its trains as fast, but its relative improvement has been even greater than that for the northern lines of the system; its net ton-miles per train hour show an increase of no less than 55 per cent. The really striking feature is the fact that the Katy improvement in train loading and train speed is out of all relationship to the improvement in the region as a whole because the region's net ton-miles per train hour in 1924 were but 2.5 per cent greater than in 1920. The Katy's figure of 9,388 net ton-miles per train hour in the first 10 months of 1924 compared with 7,061 for the region as a whole, and was exceeded by the figure for but one other road, namely, the Gulf, Colorado & Santa Fe.

The improvement in fuel consumption is also of interest, the Katy now using 39 per cent less coal, or its equivalent, per 1,000 gross ton-miles than in 1920, the Texas lines 47 per cent less, and the region 28 per cent less. The Katy's figure of 109 and the Texas lines figure of 123 compare with 139 for the region. It is seldom that a group of operating statistics can be found to reflect accomplishment so markedly as do the figures for the Katy, and the accomplishment is all the more notable because in comparing results with the neighbor roads of the Southwestern region one is setting up a high standard.

The table shows the per cent of freight cars and freight locomotives unserviceable. The figure of unserviceable locomotives for the Katy's northern lines for the first 10 months of 1924—23.9 per cent—is high. It is an average for the 10-months period, and is taken from the Interstate Commerce Commission reports of operating statistics and not from the data reported to the Car Service Division. High though it may be, it represents a marked improvement fom the averages for the full years 1922 and 1923. In 1922, unserviceable locomotives on the Katy's northern lines averaged 34 per cent, and in 1923, 40.9. The Texas lines average for 1922 was 43.3 and in 1923, 40.9. In January, 1923, both groups of lines reported averages for the month approximating 50 per cent. Gradual improvement followed as the road succeeded in catching up on deficiencies resulting from the shop strike. In January, 1924, the Katy average was 26.7 per cent and the Texas lines, 17.6. In October, 1924, the averages were, respectively, 18.4 and 10.6.

The aim in pointing out these details is to indicate something in connection with the 1924 earnings. These are reported for the system as a whole. They show, as compared with 1923, an increase of $1,321,427 in operating revenues and a decrease of $3,896,284 in operating expenses. It has been noted that a part of the saving in expenses was due to a decrease in transportation expenses. However, it develops that in 1924 as compared with 1923 there was a decrease of some three millions in maintenance of equipment. In other words, of the total decrease in expenses three-quarters was in the maintenance of equipment account. The situation as a whole means that in 1923 the Katy had to spend very large sums to catch up on deferred maintenance resulting from the shopmen's strike. The larger part of the work was done in 1923 so that expenses for this purpose in 1924 were naturally much less. However, the evidence is that the decrease in maintenance of equipment expenses in 1924 was not at the expense of the maintenance program, because although the costs were less than in 1923, there was an actual reduction in the proportion of unserviceable locomotives.

The fact that the Katy uses so much mileage under trackage rights is reflected in substantial joint facility rent payments, these totaling in 1923 about $800,000. The system also has a debit per diem balance. Prior to 1918 it used to have a credit balance. In 1922, the debit balance had become $1,403,504; in 1923, it was but $519,501. It is of interest that at the end of 1923 the road owned fewer freight cars than at the end of 1916, the number at the end of 1916 being 23,708, but at the end of 1923, 22,849. At the end of 1922, the car ownership was 20,931, but in 1923 the system acquired 2,500 freight cars, and it is presumably due to the increased ownership that the 1923 per diem debit balance was less than in

1922. During 1923 also, the system acquired 55 locomotives. At the end of 1916, the Katy owned 665 locomotives with an average tractive force of 32,411 lb. At the end of 1923, it owned 644 with an average tractive force of 39,886 lb. The road's standard locomotives are of the Mikado type, there being 190 of these with average tractive effort of 58,279 lb.

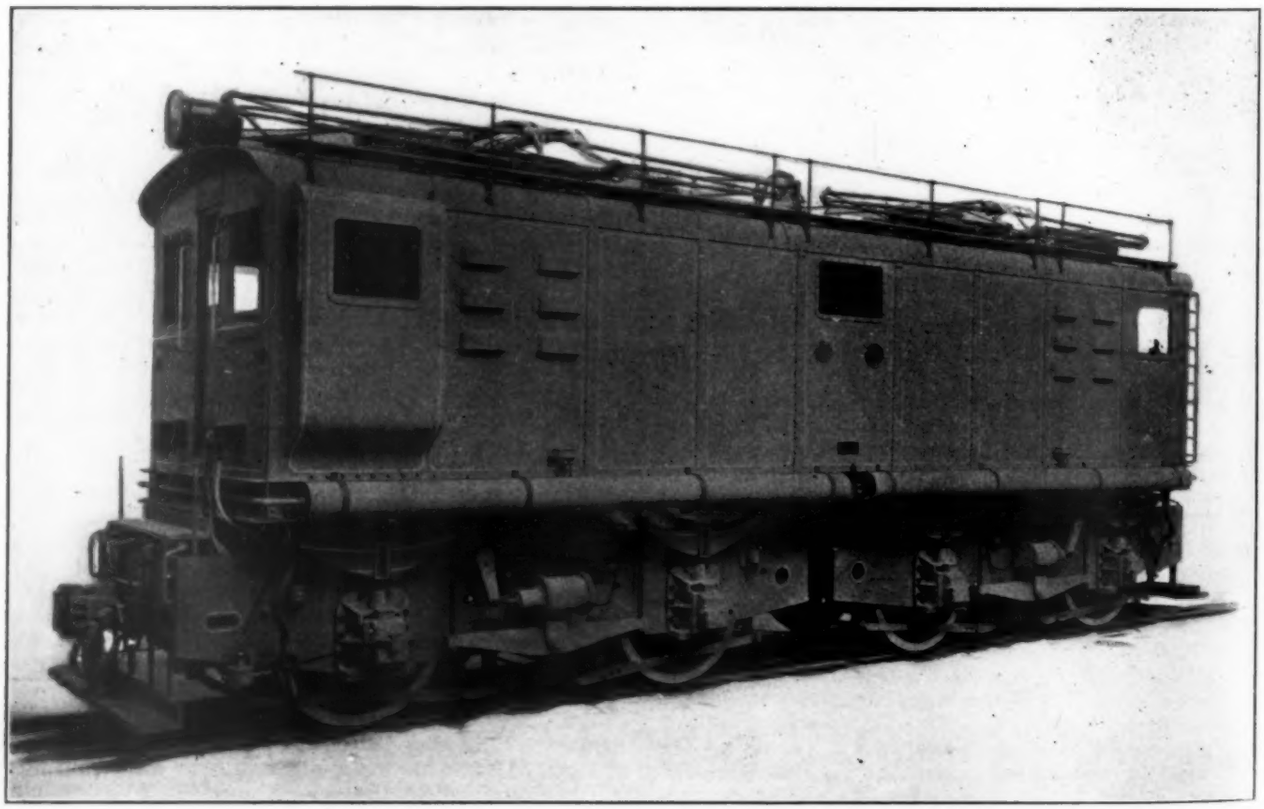
Train Control Progress

WASHINGTON, D. C.

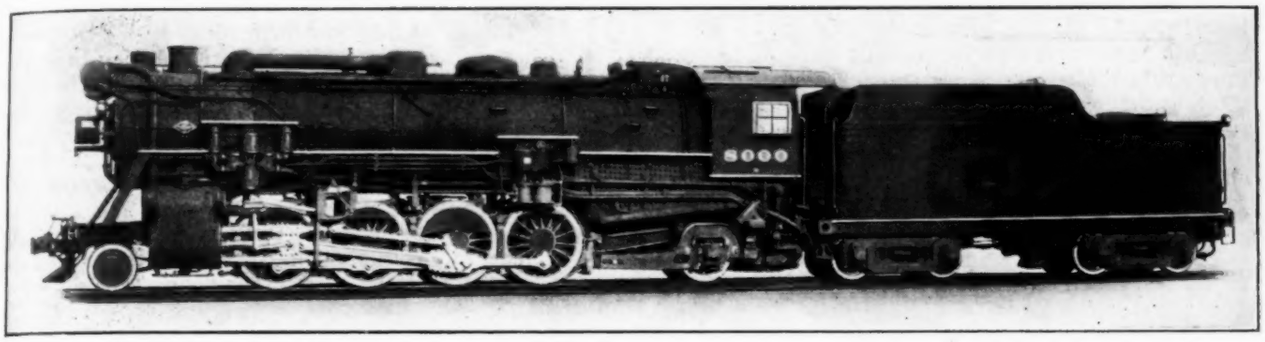
NINE of the 47 railroads required to instal automatic train control by the Interstate Commerce Commission's order of June 13, 1922, had completed the roadway installations required by January 1, 1925, according to a letter from Commissioner Esch in reply to an inquiry by Representative Snyder of New York, who has pending a bill in the House to impose more severe penalties for failure to comply with the order. The nine roads are the Chicago, Rock Island & Pacific; Chicago & Eastern Illinois; Chesapeake & Ohio; Atchison, Topeka & Santa Fe; Galveston, Harrisburg & San Antonio; Norfolk & Western; Oregon-Washington Railroad & Navigation Company; Reading, and Southern Pacific. The Rock Island installation has been given its final test and approved, Commissioner Esch said, and the commission's engineers have just completed the final inspection and test on the Eastern Illinois, but the report has not yet been formulated. The Chicago & Erie and the Buffalo, Rochester & Pittsburgh have been relieved from the operation of the order.

On January 1 there were five installations of less than 20 miles in extent in the territory prescribed in the order and 19 carriers had installations of 20 miles or over, while 12 had no installations on a passenger locomotive division between the points fixed in the order. These were the Baltimore & Ohio; Boston & Albany; Central of New Jersey; Cleveland, Cincinnati, Chicago & St. Louis; Delaware & Hudson; New York, Chicago & St. Louis; Pennsylvania; Pere Marquette; Pittsburgh, Cincinnati, Chicago & St. Louis; Richmond, Fredericksburg & Potomac; Southern, and West Jersey & Seashore. However, test installations have been made on the Delaware & Hudson; New York, Chicago & St. Louis; Pere Marquette, and Erie. Twenty-seven extensions of time have been granted by the commission and petitions for extension have been denied in four cases. "It is our belief," Mr. Esch said, "that an earnest effort will be made by the carriers granted an extension of time to complete installations of passenger locomotive divisions by July 1. . . . The commission through the orders it has issued is demonstrating, as I believe, its purpose to give a just and reasonable administration of section 26. When it is realized that the commission granted three extensions, making a total of about ten years for compliance with the safety appliance act with reference to installation of automatic couplers, its action with reference to automatic train control cannot justly be criticized in view of the very large expense attendant upon the installation of automatic train control."

The Interstate Commerce Commission has made public a letter from E. H. De Groot, Jr., director of the Bureau of Signals and Train Control Devices, to C. O. Jenks, vice-president of the Great Northern, offering criticisms and comments as the result of a preliminary inspection by the commission's engineers of the installation of the intermittent magnetic train-stop device of the Sprague Safety Control & Signal Corporation on the 23-mile single track section of the Great Northern between Minot and Berthold, N. D.



One of Four 100-Ton, 2400-Volt, Direct Current Electric Locomotives Built by the English Electric Company, Ltd., for the Montreal Harbor Commissioners. The Mechanical Parts Were Built by Beyer Peacock & Company, Ltd., England

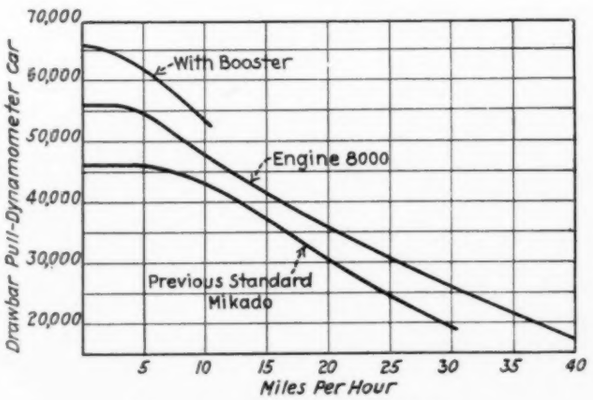


Locomotive 8000, Built by Lima in 1922

Performance of Lima Locomotive No. 8000

Operating and dynamometer test data show effect of increased horsepower capacity

DURING the summer of 1922, the Michigan Central placed in service Locomotive 8000, built by the Lima Locomotive Works, Inc. This locomotive, a description of which appeared in the July 22, and September 2, 1922, issues of the *Railway Age*, was developed for the purpose of producing a maximum horsepower output per unit of weight with a minimum of fuel consumption. The locomotive is equipped with a Type E



Comparative Drawbar Pull Curve

superheater, an Elesco feedwater heater and a locomotive booster. Its cylinders are 28 in. in diameter by 30 in. stroke; the driving wheels, 63 in. in diameter and the boiler pressure, 210 lb. per sq. in. The total weight of the locomotive is 335,000 lb., of which 248,000 lb. is on the drivers and 58,000 lb. on the trailing truck Its rated tractive force is 66,700 lb. which is increased by 11,000 lb. when the trailer booster is placed in operation. One of the important features in the design of this locomotive from the standpoint of its utility in fast freight service is a marked decrease in its dynamic augment as compared with the usual design of running gear for the Mikado type locomotive.

During the road trials of the locomotive on the Michigan Central, a brief account of which appeared in one of the earlier articles, it demonstrated its ability to start and handle heavy tonnage trains without difficulty and with a relatively high combined efficiency of the boiler and superheater. On June 24, 1922, for instance, it handled 9,254 tons in 138 cars from Detroit, Mich., to Toledo, Ohio, without help, a distance of 47.6 miles in 3 hr. 30 min.

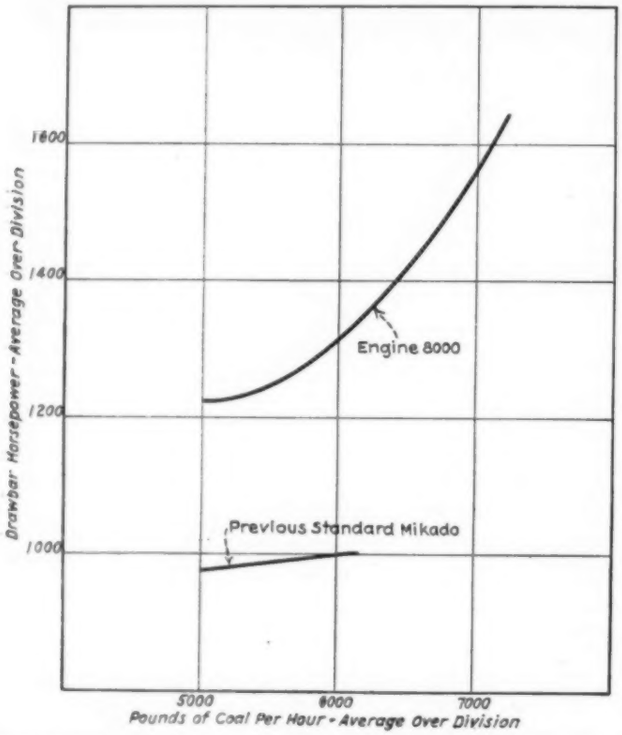
Again, on June 30, a 10,039-ton train was hauled over this division in 147 cars, no assistance being required to start or haul the train, which attained a maximum speed of 18 miles an hour. On three full-tonnage runs made between Detroit and Toledo, the actual evaporation averaged 9.7 lb. of water per pound of coal, indicating a combined efficiency for the boiler and superheater of about 77 per cent. During the two and one-half years since Locomotive 8000 was built, some 300 additional orders for locomotives of this type, placed by the New York Central System, have been reported in the *Railway Age*.

Since these early road trials, much additional operating data, showing the operating results with Locomotive 8000 have become available. A summary of this data, showing the operating results which this locomotive has produced compared with the results obtained from the operation of another Mikado type freight locomotive which may be considered a typical representative of good design and proportions of the more conventional type, is being published by the builder. These results indicate that Locomotive 8000 has, in fact, proved to be capable of developing high sustained horsepower.

A comparison of the principal dimensions of the two types of locomotives, the operating results of which are compared, is given in the table. From a study of these dimensions it is evident that with an increase in weight of only 2.1 per cent, the maximum tractive force of Locomotive 8000 has been increased 39 per cent, this result including the effect of the booster, with which the older type of locomotives was not equipped. Referring to the drawbar-pull curves shown in one of the charts, it is evident that this high starting effort is accompanied by a marked increase in sustained power output. For instance, at 20 miles an hour the drawbar pull of Locomotive 8000 is 15 per cent higher than that of the locomotive with

which its performance is compared, while at 30 miles an hour it is 28.5 per cent greater.

What Locomotive 8000 has actually accomplished in improving fuel economy is clearly indicated in the chart showing the relation between the average hourly coal consumption during the complete run over a division and the average of the drawbar horsepower developed. For an average fuel consumption of 5,000 lb. of coal per hour, Locomotive 8000 produced a little more than an average



The Relation of Drawbar Horsepower and Coal Consumption

of 1,200 hp. as against something less than 1,000 hp. for the locomotive with which its performance is compared. This is an increase of 25.5 per cent in the average horsepower developed during the run, with the same fuel consumption per unit of time. Similarly, for an average fuel consumption of 6,000 lb. per hour, the increase in drawbar horsepower was 35 per cent. Except for the effect which the increased speeds indicated by the higher horsepower performance of Locomotive 8000, may have in increasing the average train resistance over the division, increased drawbar horsepower is proportional to increased ton-miles per train-hour.

The high capacity of the boiler of Locomotive 8000 relative to that of the locomotive with which its performance is compared, is clearly evident from the divergence of the curves for the two locomotives. Within the range plotted for the older Mikado type locomotive, the increase in average horsepower output is comparatively small, apparently varying in a fixed ratio to the increase in the amount of coal burned. In the case of Locomotive 8000, however, the increase in average horsepower is shown to have continued at an accelerating rate through a range of average fuel consumption from 5,000 lb. of coal per hour to over 7,000 lb. of coal per hour. The ability of Locomotive 8000 to handle heavy trains at the comparatively high average speeds which the coal consumption-drawbar horsepower curve suggests, has been clearly demonstrated by its actual performance in service. A

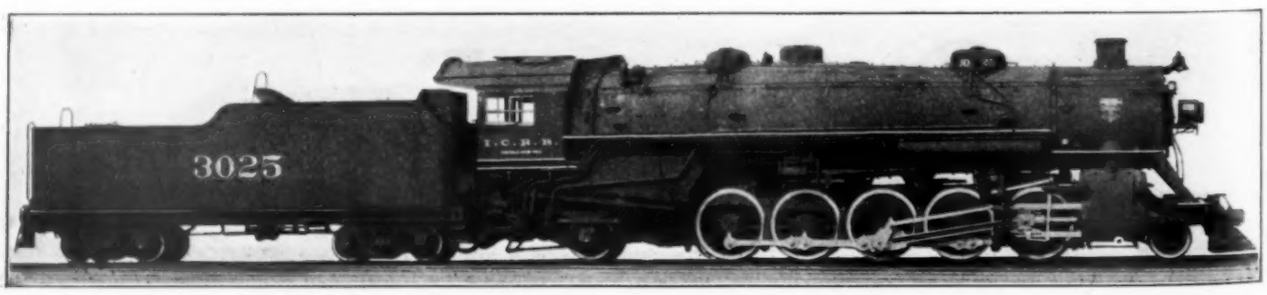
DIMENSIONS OF THE LOCOMOTIVES COMPARED

	The older Mikado	Locomotive 8000
Type of locomotive	2-8-2	2-8-2
Service	Freight	Freight
Cylinders, diameter & stroke.	27 in. by 30 in.	28 in. by 30 in.
Weights in working order:		
On drivers	246,000 lb.	248,000 lb.
On front truck	26,500 lb.	29,000 lb.
On trailing truck	55,500 lb.	58,000 lb.
Total engine	328,000 lb.	335,000 lb.
Diameter driving wheels	63 in.	63 in.
Boiler:		
Pressure	200 lb.	210 lb.
Diameter	86 in.	86 in.
Firebox, length and width	114⅛ in. by 75¼ in.	114⅛ in. by 84¼ in.
Tubes, number and diameter.	295—2 in.	.....
Flues, number and diameter.	43—5⅜ in.	253—3½ in.
Flues, length	21 ft.	20 ft.
Tractive force	59,000 lb.	66,700 lb.
Tractive force, with booster.	.....	77,700 lb.

locomotive of the same design as No. 8000 is said to have handled a meat train of 77 loaded cars on a 90-mile run without a stop at an average speed of 49 miles an hour.

One of the factors in the ability of a locomotive to perform such service from the mechanical standpoint is the comparatively small effect of the dynamic force resulting from the vertically unbalanced counter-balance in augmenting the actual rail loads. In this connection it is interesting to note that a special test was made with a locomotive of this type, running light, in which it actually ran at a speed of more than 70 miles an hour.

The horsepower—coal consumption curves, calculated on the basis of actual road operating data, are unusual. Coal consumption in actual service has generally been calculated on a ton-mile performance basis. As sustained speed becomes an important factor in operation, however, such horsepower performance curves become essential. The fuel rates shown by such curves, representing average operation over a division, with the variations in the power output which go to make up the average, cannot be compared with similar data obtained from formal tests where variables have been eliminated.



Santa Fe Type with 73,800-lb. Tractive Force—Built by the Lima Locomotive Works for the Illinois Central

College Men and Railway Service*

How railroad officers feel toward college men, and ways to enlist their services

By Winthrop M. Daniels
Thomas DeWitt Cuyler Professor of Transportation, Yale University

IN order to answer the question—what railroads can do to enlist university men in railroading—I thought it necessary, first of all, to ascertain the viewpoint of eight representative railroad executives upon this matter. To my eight inquiries I had six replies, several of the replies coming jointly from two or three officers connected with the same road or system. It may be said that my responses cover replies from the personnel officer and a staff officer of a New England road; from high executives of two of the largest eastern trunk line systems; from a high executive of a large and expanding system in the western and central part of Official Classification territory; and from the heads of two transcontinental systems. Southern territory and the southwest are not represented.

I ought further to say that the answers to my inquiry were quite without reserve and in most cases indicative of deep interest in the matter.

The questions contained in my letter of inquiry sometimes overlap. A more carefully drafted set of interrogatories would have been possible, but I was bent rather on obtaining the actual views of my addresses than a set of stereotyped replies which could be neatly tabulated by a counting machine.

In my inquiry I, first of all, disclaimed the slightest suggestion that any favoritism ought to be shown to college graduates. Then, having noted that certain large industrial concerns make a regular yearly canvass of college graduating classes, with a view to employing the more promising men, I asked whether the railroads did the same thing; if not, for what reason? Whether they had a substitute regime, such as a training school on an apprentice system of their own? How they recruited for their own training school? Whether the failure of railroads to make a canvass was due to the fact that they could not offer the same pay and the same prospect of promotion that other concerns can? How far the seniority rules are an obstacle to prompt promotion of college men who enter railroading? Has the apprehension of eventual government ownership and operation deterred the railroads from making such a canvass? In what departments of railroading does the college man have the best chance of advancement? Whether the particular railroad has a personnel department with a regular head thereof?

No Canvass for College Recruits

All the responses agree that railroads make no such regular annual canvass. Occasionally they address letters to one or to a few colleges or technical schools, generally in their own territory, when some development indicates the need for enlisting additional help for which college men are desired.

The prevailing reason for not making such a canvass is that they normally have sufficient applications anyway. Enough "knock at the door" now, as one says. Two responses refer to their disappointing lack of success when efforts were made to enlist college men. One of the efforts was a carefully planned and systematized design to build up a permanent company training school in charge of a salaried instructor.

The substitute regimes on various roads are apparently extremely limited in character and extent. They comprise the apprentice system, particularly in the mechanical department, and night schools, or special courses in drawing or designing or sometimes in accounting.

Referring to the relative disability as regards the prospect of pay and promotion, in comparison with other commercial and industrial enterprises, the consensus of opinion, with one or two dissents, is that in the long run, and considering regularity of employment, the remuneration will average as high as in the general run of other industries. All virtually concede, or at least do not deny, that it will be lower at the start, and that increases of pay and promotion in rank are likely to be slower in railroading than elsewhere. Two executives stress the fine chance which real talent and steady application have in railroad work. Several emphasize the more certain career and the intrinsic and ever changing interest in railroading.

Seniority Rules Delay Promotion

The seniority rules are generally admitted to slacken the rate of promotion for the college man in railroading. They are said by some to be the principal factor governing promotion in service, but on the other hand are no insurmountable barrier if superior capacity is demonstrated. The prime necessity of not impairing morale among the employees by anything savoring of favoritism is stressed very generally, although seniority, it is said, will give way to demonstrated superior capacity to fill a higher post. In other words, the burden of proof, "the risk of non-persuasion," must be assumed by the college man who aspires to promotion against the man of longer service.

Whether eventual government ownership is a ponderable factor in deterring railroads from seeking to enlist collegians is answered in conflicting fashion. Some scout the suggestion; others admit it has had force and is still reflected in the disinclination of railroad executives to encourage their sons or their friends' sons to enter railroading.

Where Is the Greatest Opportunity?

As to the branch of railroading offering the best opportunities to collegians, some reply there is no difference, others say that mechanical engineering offers a far better chance than civil engineering. One carefully weighed answer says that employment in the office of an executive gives unusual opportunity to the capable man, but has its drawbacks in that it affords no opportunity for ever obtaining experience in the field and therefore no chance for a line job; and it also carries a serious drawback in that the individual is regarded by his fellows as a favorite, a "company pet," as one puts it, who has not fairly won his spurs, and who cannot command the

*A paper read at a round table discussion on transportation at the annual meeting of the American Economic Association in Chicago, on December 30.

same co-operation of other employees as one who has worked his way up.

There seems to be a strongly prevalent opinion that the transportation department on the whole offers the best opportunity to the man who is content patiently to learn his job. There is also a general opinion that technical engineering competence is far less of an asset for advancement in the operating department than executive and business ability and the capacity for leadership based on a practical knowledge of how to handle men. Despite the opportunities offered by the department, the view prevails that it makes the weakest appeal to college men. They are unwilling to spend the time in all the minor positions to learn the business thoroughly. They are said to dislike "dirty work." They do not "stand the gaff." There is a large percentage of posts in the operating department that require a minimum of technical knowledge. This tends to create therein a numerous class whose wage level is said to compare favorably with what similar work brings elsewhere, but whose level is below what the college man expects or obtains in other employ.

It should be added that of the six systems from which replies came, three have no personnel department or bureau. Two have such a bureau, and the exact present status of the remaining respondent is not wholly clear, although in the past it has made the most comprehensive attempt to organize a regular company school for instructing apprentices, particularly those obtained from colleges.

How to Enlist College Men

After the best consideration I have been able to give the question which this paper seeks to answer, there are only two suggestions which I venture to make. The first is that railroads should authoritatively acquaint students in colleges and technical schools with what they may fairly expect if they enter railroading as a career. The second is that railroads should clearly outline to the schools what instruction is desired of them and what instruction the railroads feel can be imparted best by practical experience in railroad employ.

If I were a publicity man for railroads I should make an effort to bring down to date the story of Hercules at the Forks of the Road. It ought to be made clear that if one thinks of entering the railroad field as an attorney or an accountant, or as a statistician, the primary training is already available in the schools. If one has the chance to enter the office of an executive, it is a preferred opportunity, carrying its own special advantages and its own serious limitations as well. But if one expects to go into the operating or mechanical or traffic departments he must confront the following facts. First, that in these fields railroading does not offer to the college graduate the same relative initial advantages of pay and promotion as in the era of railroad expansion in decades past. The railroads do not now require or attract men of the adventurous calibre that formerly found in transportation an opportunity and a congenial employment. "Rough Riding" in railroading has given place to "Watchful Waiting." Moreover the relative advantage college men once had in the field has probably lessened because the intelligence and capacity of the bulk of railroad employees has risen. Carriers are more careful about the type of employee they take on.

The college man who thinks of entering the operating or engineering branches of railroads cannot expect at the start the same rate of pay or the unhampered chance to promotion which certain other industrial concerns in their present expanding stage can offer. He must offset against these drawbacks the greater certainty and regularity of employment, with the reasonable anticipation of remuneration which will average well with that of other commercial or industrial concerns. If he has the application and the talent, there is much the same chance of drawing a big prize in the lottery as elsewhere. But he must at the start forswear allegiance to the white collar, and resign the by-industry of lounge lizard. If he is unwilling to pay the price required, he should avoid railroading.

My second suggestion is that the railroads should indicate clearly to the schools what courses the railroads think the schools should offer and what must be learned in the service. That the elements in engineering, mechanical, electrical and civil, should be imparted goes of course without question. But to what extent is university instruction in railroad construction, in railroad operation, in traffic management, in the study of rate construction, or of tariffs, or classifications and their application, helpful? Should accounting be pursued in the schools beyond the general basic principles, or should an attempt be made to afford specific instruction in railroad accounting? How far should specific instruction be given in railroad statistics? How far should the designing of mechanisms or of structures or of terminals be taught? To what extent is formal instruction in personnel management worth while? What instruction should the colleges afford in matters of public regulation, or in the general law of carriers, as a specific aid in preparation for railroading as an occupation, as contrasted with what may be taught as a matter of liberal enlightenment in an important field of economics and finance? What kinds of advanced or graduate instruction in transportation can most serviceably be given by universities? If the railroads will state their opinion in these matters, their views will be most helpful in affording a basis on which to build a sound superstructure.

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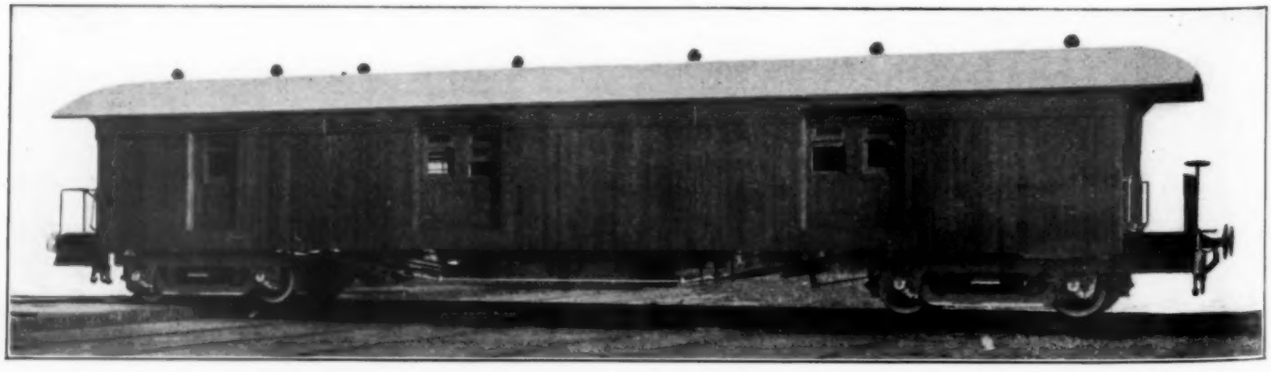


Built for the Central Argentine Railway by the Gloucester Railway Carriage & Wagon Co., Ltd.

The Hearing on the Gooding Bill

Railroads and shippers unite in opposition to proposed amendment

WASHINGTON, D. C.

ENACTMENT of the Gooding long and short haul bill would have a paralyzing effect on the commerce of the country, through its effect on existing rate structures, and would prevent the transcontinental lines from increasing their net revenues by utilizing empty car capacity westbound, according to testimony of railroad officers before the House committee on interstate and foreign commerce on January 29 and 30. The railroad testimony followed two days of testimony by representatives of shippers from various parts of the country in opposition to the bill. Because the opponents of the bill were given more time than the proponents, at afternoon sessions, it was decided to allow the latter additional time for rebuttal on February 3, after which the committee planned to hear the views of the Interstate Commerce Commission on the bill. Representative French of Idaho, the spokesman for the intermountain advocates of the bill, appeared more anxious to have the hearing closed, so that an effort might be made to get it before the House before the close of the session, than to consume further time by additional testimony. The attitude of the members of the committee who attended the hearings, so far as it was revealed by their line of questions indicated that more of them had been impressed with the arguments against the bill than were inclined to favor it.

T. C. Powell Opens Attack

In opening the attack of the railroads on the bill T. C. Powell, traffic vice-president of the Erie, said in part:

"This bill is not a declaration of principle, but is an attempt to make rates by machinery which would hamper the Interstate Commerce Commission and the railroads in establishing just and reasonable rates. The bill is not sincerely designed to prevent the railroads meeting competitors' rates at terminal points, but on the contrary is intended to take advantage of the well established rule of traffic management under which the railroads now afford to shippers and receivers of freight freedom of distribution and purchase, and by taking advantage of that traffic policy to force down the intermediate rates in many cases to a figure lower than the intermediate points are entitled to under any fair basis of calculation.

"I wish to emphasize that the bill would be injurious to commerce because of its restrictive character and because it fails to take into account commercial conditions and is in violation of the good faith under which thousands of manufacturing plants have been established at local stations on different railroads.

"The present interstate commerce law guarantees to the shippers fair and reasonable rates without unjust discrimination. This bill, if enacted into law, would demoralize the rate structure and would introduce chaos into what is now an orderly arrangement throughout most of the United States. Many industries have located at local stations of the various railroads in competition with the industries on other lines on the good faith of the carriers and the interstate commerce act. This bill would violate the moral right of shippers to expect such equal treatment.

"Should the bill become a law, the immediate and instantaneous effect would be to limit the transportation of freight traffic to the short line routes over which no exceptions to the long and short haul clause have been granted. This means that the lines or routes which have been competing against the shorter lines under the terms of the present fourth section, must immediately retire from any traffic which involves handling freight at a lower rate to a further point than in effect to the intermediate points.

"The railroads, in self defense and regardless of their knowledge that this would seriously affect thousands of shippers, would immediately be forced to publish new tariffs advancing the rates to the further points to at least as high as the highest intermediate point, until a public hearing could be held and the commission be enabled to make a ruling on each case submitted to it. In the meantime business would be demoralized and the shipping public would be helpless. Industry would suffer immense losses through these arbitrary restrictions and demoralization of rate adjustments. The situation is not confined to the intermountain territory nor to the transcontinental points.

"Between points in the Eastern territory and points west of the Mississippi river and between points in the Eastern territory and points south of the Ohio and Potomac rivers, there is an absolute necessity for preserving to the carriers the right to meet water competition provided the rates so established under the supervision of the commission shall be 'reasonably compensatory' for the service rendered. This means that there must be a profit on each transaction over and above the operating cost. Whether or not an individual rate is reasonably compensatory for the service rendered under the present fourth section of the interstate commerce act, has nothing whatever to do with the statutory rate of return of 5¾ per cent on the 'property devoted to transportation.' Of course, each factor of railroad revenue leads toward the general result, but whether any rate of return were named in this bill or not, it does not need any argument to demonstrate to this committee that the railroads must have a fair return over and above the cost of operation.

"If the rate proposed does not pay the estimated cost of transportation—in other words, if the railroad does not get back a new dollar for an old one plus a profit—then it is not 'reasonably compensatory.' But if the railroad is debarred from handling freight which is reasonably compensatory the problem of maintaining the property is made just that much more difficult.

"The shippers of the West owe a debt of gratitude to the Eastern lines for putting into effect competitive rail rates to western points, because the effect is not to discriminate against the intermediate points but through the handling of the traffic in competition with water lines to secure a certain amount of revenue which helps pay the expense of handling the otherwise empty cars westbound necessary for the transportation of the products of the West to the East.

"To exclude the railroads from all opportunity of participating in traffic between two water competitive points and points adjacent thereto results:

"1st. In turning over to the water lines a monopoly not only of the existing traffic capable of being handled by

vessels between these points, but also gives the vessels a death grip on all such traffic for the future.

"2nd. Such a law establishes a monopoly in the hands of the ocean-going vessels, and those traversing the inland waters of the United States, and as the commission has no authority over such rates there is no protection against discrimination even between competing merchants.

"3rd. To prevent the rail lines participating in a portion of the traffic between water competitive points is a violation of the moral right of the common carriers of the United States to participate in any and all traffic which in their judgment can and should be transported by the railroads."

Mr. Powell pointed out how the proportion of eastbound traffic and westbound empty movement had been increased in recent years by the development of new traffic in fruits and vegetables from the west. He also said that probably 50 per cent of the freight traffic of the country moves under fourth section relief which would be affected by the bill, and that the natural consequence of its passage would be to force shippers to locate near the coasts. Referring to statements of the intermountain representatives that their freight rate descrimination prevents the investment of capital Mr. Powell said he had always noticed that "the section that don't get capital is the one that keeps emphasizing its alleged disadvantages instead of emphasizing such advantages as it possesses."

Charles Barham, chairman of the Southern Freight Association, also opposed the bill. "The carriers of the South," said Mr. Barham, "believe the Interstate Commerce Commission is competent to administer the present act and has the necessary fair purpose and intent. They believe the commission may safely be relied upon to decide situations covered by the present fourth section, or which would arise should that section be wholly eliminated from the act. They have a very real fear of rate-making by legislation or rate-making as the result of attempts to define by legislative enactment specific situations which rates shall cover or exclude.

"Several examples as to the effect the proposed bill would have if enacted into law are interesting:

"American manufacturers in Minnesota, Wisconsin and New England have lost to Scandinavian competitors the newsprint paper business of New Orleans amounting to approximately 25,000 tons per annum. The commission has granted fourth section relief to the carriers and efforts are under way to regain the business. The proposed bill would make it impossible, for the carriers could not afford to reduce the intermediate rates as would then be necessary.

"An important southern line has price tenders from Belgian makers for its 1925 rail supply. The rails can be delivered alongside docks at Jacksonville or Savannah for $37.50 per ton, or plus duty $39.74. Rails at the nearest point of American manufacture, Birmingham, Alabama, are priced at $43 and the freight rate is $3.49, a total of $46.49. The amended bill would not permit southern carriers to assist in relieving this situation.

"The Ford Motor Company steamship 'Oneida' sailed from Detroit via the Great Lakes and the St. Lawrence river November 12. Having touched and partially discharged at Jacksonville, Florida, December 2, she reached New Orleans December 7 with steel and iron parts for 1650 cars and later Houston, Texas, with parts for 5,000 cars. At New Orleans she loaded in addition 165 closed car bodies for the Houston plant. Who benefited? Evidently not the public, for the automobiles were sold f. o. b. Detroit, plus the rail freight rate. The amended bill would not permit this competition to be recognized, although it is plain that a reduction in the rail rate would automatically and wholly go to the purchasers of automobiles, one of the few instances, by the way, where a reduction in freight rates can be directly traced to the consumer. In this case the Texas purchasers of 5,000 Ford automobiles lost the difference.

"The manufacturers of American cement have practically lost out entirely against foreign cement moving through the South Atlantic ports and sold in coast territory and in Florida.

"In the last few months 8,365 tons of foreign salt came into Wilmington, Savannah and Charleston. The shippers in Louisiana, Texas, Michigan, and New York lost and the southern carriers could not afford to help them."

J. A. Streyer of the American Short Line Railroad Association described the effect of the bill on the numerous short line railroads throughout the country.

Effect on Transcontinental Roads

Charles Donnelly, president of the Northern Pacific, outlined the history of the transcontinental rates to show that when the railroads first reached the Pacific coast they found water competition and that it was necessary for them to make lower than ordinary rates to meet the competition. In other words the railroads were confronted with a condition and not a theory. If the railroads felt that the interior points would be injured by applying lower rates to the coast their application now pending before the commission would be instantly withdrawn, he said, but since the roads are convinced that injury will not result they are persistent. If the Gooding bill were passed it would be impossible for the commission to grant the application. Many people in the interior now recognize the validity of the railroad argument but so little is the subject understood in general that all kinds of things not related to the rate structure are ascribed to it. For instance, he referred to Senator Gooding's statement that 60,000 people have left the state of Idaho in recent years, although for seven years the rates to the intermountain country have been no higher than those to the coast. Mr. Donnelly said that people who settle in a new country do not generally know much about the freight rates structure but that, if they have been leaving because of it, it might be better to restore the rates under which they went to Idaho instead of seeking to perpetuate by law the system under which they have left.

To illustrate the position of the railroads in their applications to the commission Mr. Donnelly said that the rate from the East on wrought washers is $1 to Spokane or Seattle. Formerly the Milwaukee manufacturers participated in the business but now Pittsburgh has a rate by rail and water of 76½ cents to Seattle so that Milwaukee can no longer compete. The railroads are asking to make a rate of 80 cents from the middle West to Seattle without reducing the rate to Spokane so as to get some of the business, but such a rate would not injure Spokane in any way because Seattle already has the rate advantage. The relief asked would result in some improvement in the condition of the Northwestern lines, Mr. Donnelly said, and they need additional revenues if they are ever to earn a fair return. The Northern Pacific since 1919 has never in any year earned as much as 4 per cent on the easily ascertained value of its property, and that road, the Great Northern and the Northwestern have been obliged to reduce their dividends while the Omaha and the Soo have discontinued dividends. The railroads with their present facilities could handle all the westbound traffic moving through the Panama canal and they have potential capacity going to waste which could earn some profit and thus reduce the burden on other traffic.

W. P. Kenney, vice-president of the Great Northern, also said that his company would not be a party to the fourth section application if it thought the interior points would be injured. It is interested in the interior traffic and has made eastbound rates from the interior which make it possible for their products to reach competitive markets but it has a chance to take some additional westbound traffic if it can make rates for it which it could not afford to apply where such rates are not necessary. The railroads do not expect to take away all the traffic of the boat lines, although the latter are taking much traffic that the railroads had built up. For example the road last year handled only 2,000 tons of steel into the Puget Sound district, as against 82,000 tons that went by water, whereas formerly the road handled a large share of that traffic. The Great Northern could move 1,427 tons of additional freight per day westbound without additional cars, crews or engines. The Gooding bill will amount to a rigid long and short rule, Mr. Kenney said, because the commission could not possibly hold the necessary hearings in twelve months to enable it to authorize departures and if it is passed it will be a long time before there will be any development of the interior sections, which need fourth section relief eastbound to develop markets.

R. M. Calkins, vice-president of the Chicago, Milwaukee & St. Paul, pointed out that this road had spent $200,000,000 for the Puget Sound extension, most of which was expended in the interior, and that much more investment is required in that territory, but that it will be difficult to make additional investments there unless there is a better return on the investment already made. The Puget Sound extension is now operated at less than half its normal capacity and during the last six months of 1924 the empty movement of cars westbound was 214 per cent of the loaded movement. In 1923 the percentage was 185. In 1924 the road earned only 2.63 per cent on its investment but it could have handled a very much greater volume of business at practically no additional transportation expense except for coal and electric current.

Paul P. Hastings, general freight agent of the Atchison, Topeka & Santa Fe, described the large empty movement of refrigerator cars westbound. Before the war, he said, it was possible to load about 60 per cent of the returning refrigerator cars with clean freight but this has now dropped to about 30 per cent and the transcontinental lines are rapidly finding themselves in the position of eastbound carriers of agricultural commodities. In reply to questions as to why, if a railroad can make a rate of 80 cents for 2600 miles, the same rate would not be more than reasonable for 1300 miles, Mr. Hastings pointed out that rates on some commodities must cover a much greater margin above cost than others in order that the latter may move at all and also that the proportion of investment cost to total cost in railroad transportation is greater than in almost any other business. He said that the average cost of moving additional freight has been calculated at from 25 to 40 per cent of the average total cost of moving all freight.

E. J. Rich, representing the Associated Industries of Massachusetts, the concluding witness in opposition to the bill, said its passage would overthrow the system on which the industry of the country has been built up, and he showed its particular application to New England.

On February 3, J. A. Ford, of Spokane, secretary of the Intermediate Rate Association, gave additional testimony in rebuttal.

Rebuttal testimony was also given by W. S. McCarthy, president of the Intermediate Rate Association, Frank Lyon, counsel for the Luckenbach steamship line, and H. H. Williams, of the New Mexico railroad commission. Mr. Lyon said that the testimony had shown that the Gooding bill ought to be amended to omit the provision which would prohibit all fourth section departures after twelve months except such as might be authorized by the commission after a public hearing, and Mr. Ford said that if the committee felt that the bill would injure any part of the country the committee might amend it. He said it was not the intention of the framers of the bill to injure other parts of the country nor the short lines, in the way that Mr. Streyer said it would injure those in the South, and he suggested that they propose an amendment that would protect them. Mr. Lyon insisted that the contention of the railroads that any additional westbound traffic could be handled in empty cars was of no force because the space occupied in the vessels through the canal is approximately equal eastbound and westbound and if they lost a million tons westbound they would have that much less capacity eastbound and the railroads would get that eastbound traffic. He said that if Congress does not prevent the railroads from competing with the water lines at out-of-pocket-cost rates the boat lines will be destroyed and that they object to having their business placed at the mercy of the Interstate Commerce Commission. Representative Hawes of Missouri questioned Mr. Ford to show that for fear that the commission will grant the application of the transcontinental railroads the intermountain states are asking Congress to take away the discretion of the commission although all the rest of the states would be affected, and he said that none of the 21 members of the committee had received any demand from their states for the passage of the bill while many had been informed that their constituents were opposed to it. Mr. Ford said that seven and one-half million people are represented by the advocates of the bill and he doubted if it would affect the other states but that if the committee thought it would the committee might "fix it." He said all the intermountain section asks is that the present status be preserved but he also said that if the bill were passed the railroads might make rates as low as reasonably possible in an effort to meet water competition and also give the benefit of the reductions to the intermediate points.

* * * *

Christening Party of Seaboard Air Line's New Florida Route —Governor Martin of Florida and S. Davies Warfield, President, S. A. L.

Essentials of Railroad Problem*

Credit, active public support, cooperation of employees are necessary

By General W. W. Atterbury
Vice-President, Pennsylvania System

THE continued and increasing interest of organizations such as yours in what railroad men have to say is a source of most gratifying encouragement. To translate this interest into action is only a step—which, I am glad to say, is, to a large extent, being taken; co-operative action between railroads and shippers is becoming a reality.

Even the most optimistic of us have ceased to look for the millennium, but when business and railroad men begin to look at things from a common angle—that of mutual interest—as they are doing today, we are certainly headed in the right direction.

Some of my friends here have suggested that you would like to hear discussed the relationship between industry and the railroads. My view of that relationship can be expressed in very few words. If all the industrial, commercial and agricultural activities of this country are considered as comprising one great enterprise, with all its production, manufacturing and marketing activities, we may look upon the railroads as the transportation department of that great enterprise. The railroads are an essential tool of industry and agriculture.

Let us see how this important department of our economic scheme has been functioning recently. In the past few weeks the industrial world has been taking stock of itself; the turn of the year is recognized as a fitting time for reviewing the past, and although perhaps not forecasting, at least anticipating the future. This season's observations and comments seem to be the most optimistic of more than a decade. They are based, too, upon substantial reasons.

It is almost five years since federal control of our railroads ended and in those years we have passed three different types of railroad conditions. The first was the period following federal control—about which the least said the better. The second period was one of readjustment, during which, because of the conditions which had preceded it, the country suffered from transportation shortage and congestion. It was also during this period, which was one of business depression, that the railroads suffered from labor troubles arising out of necessary adjustments from war-time wages and working rules.

The third period began in 1923 and continued through the past two years, during which the railroads have furnished a quality and quantity of service unequalled in American history. Those who may have had misgivings, but were nevertheless patient and tolerant during 1920, 1921, and 1922, have found in their experiences with the railroads in 1923 and 1924 ample reason for the justification of their faith. Those who felt otherwise have had only cause for wonder.

What the Railroads Have Accomplished

I am not going to give you an array of statistics, but rather a few standing facts as briefly as possible, which tell practically all that has taken place in the last five years, without the necessity of your taking pencil and paper or indulging in very much mental arithmetic.

First, the railroads handled in 1924 about six per cent more business than they did in 1920. The number of cars and locomotives was about the same in both years. They handled the increased business last year with a large surplus of equipment instead of the acute shortage of equipment which existed in 1920. Furthermore they did it in 1924 with about five men for every six that they had in 1920.

Second, this marked increase in efficiency was due not to anything spectacular or dramatic. Railroading has ceased to be that. It was due entirely to the application of what Secretary Mellon referred to in his annual report to Congress when he said: "It is only through hard work, economy and sound policies that we have a right to expect true progress." In other words, the railroads got down to real railroading, hauling more cars per train, and getting them over the road in quicker time.

Third, instead of merely exchanging dollars, as they were doing in 1920 with an operating ratio of about 100, the railroads in 1924 increased what you business men call your gross margin to a little more than 20 cents out of the dollar. In other words, their operating ratio has been brought down below 80.

The significant feature about that is that not one cent came from higher rates, because every important rate change since 1920 has been downward. All of this saving came from greater efficiency and economy conceived in and carried out by the railroad industry itself. It is costing the country many millions of dollars less today for railroad service that is far better than it was five years ago.

In 1920 the railroads had practically no net operating income at all, but in 1924 it is probable that the net operating income of all the Class 1 railroads will be approximately $975,000,000.

Aside from the importance of this increase in net to the whole credit structure of the railroads, the most important thing to observe, and the cause for the greatest amount of satisfaction to railroad men, is that this increase in net was accomplished in spite of the fact that all rate adjustments since 1920 have, as I have said, been downward.

Fourth, the relations between the railroads and the public have undergone a wholesome and substantial change. As regards industry, an outstanding development has been the organization of the Shippers Regional Advisory Boards, through which for the first time real co-operation is being obtained. As regards the public generally, it is unmistakable that people are coming to regard the railroads as something to boost and not to knock. It is also to be remembered that we are meeting with a more constructive attitude on the part of those responsible for the administration of railroad regulation.

These few facts will give you some of the reasons why railroad men have recently voiced optimism about their business in a little louder tone. I doubt if any other industry has staged a greater comeback, or staked so much

*An address delivered before the Industrial Club of Chicago on January 29, 1925.

on its faith in the fairness and common sense of the people as the railroads have done in the last few years.

When you take into account their expenditures of approximately a billion dollars a year in each of the last two years, for permanent improvements and expansion of their facilities for the benefit of shippers and travelers, and their plans for like expenditures this year; when you take into account the fact that their average return earned on the property investment has not yet reached even five per cent although the Transportation Act says they may earn 5¾ per cent, you may realize how great is the faith of American railroad men in the American people.

Value of Efficient Service

It is not necessary for me to explain to you what efficient railroad service means, but I want to suggest a question which introduces a new aspect of the benefits of efficient railroad service.

Within recent months we have had an abundance of cheap money in this country quite unequalled in our history. To what extent do you believe that this extra available capital is due to the more efficient operation of the railroads, permitting goods to pass from production into consumption faster than ever before and enabling manufacturers and merchants to avoid heavy inventories of merchandise and materials?

I do not pretend to answer this question; I do not know that specific data or statistics could ever be obtained with which to answer it. But I cannot help but believe that efficient railroad transportation has been a vitally important factor in contributing to the easy money conditions which exist today. If this is so, the railroads are responsible for bringing about conditions which have fundamentally altered the policy and practice of manufacturers and merchants and thereby helped them financially to a considerable extent.

It is a source of a great deal of satisfaction to see the increasing popularity of and demand for railway securities, and the increasing prices of railway stocks. We have recently heard considerable talk about the "bull" market on railroad stocks. To call it this, however, is inaccurate. What it really is, is a readjustment of values. It is a recognition on the part of the investor of the facts about the industry; a recognition of its return to normalcy.

It may well be asked, if the recent rise in railroad stocks is not due in some degree to the fact that at least investors are beginning to understand the real economic value of the American railroads: whether they are not looking around and finding the railroads worth more than a second look.

Now the question today is whether the American people will so act toward the railroads as to justify the railroads' faith in them which has been demonstrated so unsparingly.

Railroad men are looking forward to a far greater demand for service in the next decade than has been demanded in the past. No one realizes more than they do the need for still greater facilities to meet the country's increasing requirements. As an earnest of their desire to meet these requirements their commitments in the last two years are outstanding.

These expenditures and authorizations, however, must be continued yearly for a number of years. The capacity of the transportation machine must be constantly enlarged, for the simple reason that population, industry, agriculture, and commerce are progressively expanding. America does not stand still. It cannot afford railroads that are not at least one jump ahead of its transportation needs.

What does that mean? Essentially and primarily three things. First, it means money—credit—ability to attract people with savings to invest, to put those savings in new cars, locomotives, terminals, yards, tracks and other facilities.

There is a limit to bond issues, just as there is a limit to the amount of mortgage that you can put on your house, your factory or your store. Railroads must be able to get this new money from the sale of capital stock and they have been unable to do that on any scale worth mentioning, for ten years past.

Second, it means the active good-will and co-operation of the American public. And don't forget that a great deal in that direction depends on men like yourselves, of influence in your respective communities. I have always believed that the American people could get exactly the kind of railroad service they want.

Let me be a little more specific as to this second item—active good-will and co-operation. You can translate it into the various terms: a willingness and desire on the part of the people that the railroads be allowed, as Mr. Rea, our President says, "to get out of the four per cent class"; a demand on the part of the public that railroad men be allowed to run the railroads just as you gentlemen are allowed to run your own business; and most important of all, that you men, your organizations and others of like influence and importance, get behind the railroads and do a little shouting *for* them instead of *at* them.

Business Men and Regulation

We might as well realize that railroad regulation is here to stay. It is not regulation of itself,—the laws on the statute books—that prevents railroads from being run as you run your business. It is the application of regulation needlessly, sometimes senselessly, against the better judgment of railroad managers where no discrimination, injustice and public harm is contemplated or possible.

To overcome this situation it is not necessary to repeal or amend existing legislation, whether it is politically possible or expedient to attempt such a course. All that is required is faith in the railroad industry—confidence and trust in railroad men.

Picture what would happen and what would be the effect if such organizations as you men compose, if chambers of commerce, boards of trade, if men who make up the influential business and civic organizations throughout the country, not only trusted railroad men but made it clear to regulating bodies that they believe in railroad men and want them to be trusted.

That is not a forlorn hope. Such groups as yours, with your great influence throughout the country, can exercise an enormous power for good.

If those who are charged with regulating the railroads understood that it was part of political wisdom to back railroad management, it is certain that they would act accordingly, and in the course of time the public would be in favor of lopping off many of the stifling laws that now exist.

Employee Relations on the Pennsylvania

Now, the third essential to railroad progress and prosperity is co-operation of railroad employes. In this respect the relationship between railroads and industry is of far-reaching importance. The margin between income and outgo in the railroad business is so small that we must have the co-operation of the men on the railroads themselves in order to operate efficiently and economically. It is likewise essential that in our efforts to secure that co-operation we have the support of the business community to the extent that our policies are sound and deserve such support.

You have no doubt heard and read a great deal about

what has been accomplished on the Pennsylvania Railroad through our plan of employee representation. I shall not go into the details of its operation. The important things are the principles underlying it, and the spirit in which it is carried out.

Essentially it is this: Any employee can belong to any union he desires but the Pennsylvania Railroad insists upon dealing with its own employees and not with representatives of absentee organizations to which they belong. The Pennsylvania deals with its employees collectively, through employee representatives elected by secret ballot, regardless of their membership or non-membership in any organizations.

Every important matter affecting the employees' wages and working conditions is settled by joint action. The highest authority on the railroad in the determination of these questions is a joint reviewing committee in each department of the service, equally representative of management and men. A two-thirds vote is necessary to decide any question. Only six cases in four years have had to go beyond that committee, and each of these cases was settled by arbitrators chosen by the committee, which in turn accepted their decision.

The whole plan is designed, through a series of regularly scheduled meetings between management and men, to give every individual employee a fair hearing by a responsible officer, a prompt decision, and a review, if necessary, by a joint board of officers and men, which has final authority.

Now the point I make in this connection is that a relationship between management and men based on these principles of mutual confidence, facts jointly established and fair play, is essentially in the public interest. By the same token, any effort on the part of outsiders, whether government or private agencies, to drive a wedge between railroad management and railroad employees, is certainly not in the interest of the employees themselves, of the company, or of our service to the public.

The Railroad Problem—Three Essentials

Granted these three essentials,—sound credit, active public support and co-operation of employees—there need be little doubt whatsoever about other phases of the so-called railroad problem. They will take care of themselves. As I have indicated, we are on the way to realizing these requirements, but greater progress is necessary, and that is largely in your hands. People will not put money into 5 per cent enterprises when 6 and 7 per cent returns without greater risks are available.

Let us have your moral support at least in helping us to reach what the Transportation Act says the railroads may earn. You would consider your own business pretty close to the sheriff on present railroad returns or even on the 5¾ per cent that we are allowed—if we get it.

Take a look around at the men whom you know in the railroad business and ask yourself whether they cannot be trusted to give this country the best that is in them. Your city policeman does not arrest a man because he thinks that man *might* commit a crime. Every phase of railroad operations is a matter of public record and official scrutiny. There are ample safeguards against injustice and discrimination.

Knowing the men who are operating the railroads today, why not assume that they will do the right thing and give them the same opportunity that you get in your business to exercise initiative, judgment and discretion!

Get that idea over to those who are responsible for railroad regulation and back it up and you will find the result will be to your own advantage. The railroads will respond with a measure and quality of service beyond anything you have seen in the past.

Electric Hand Signaling Lantern

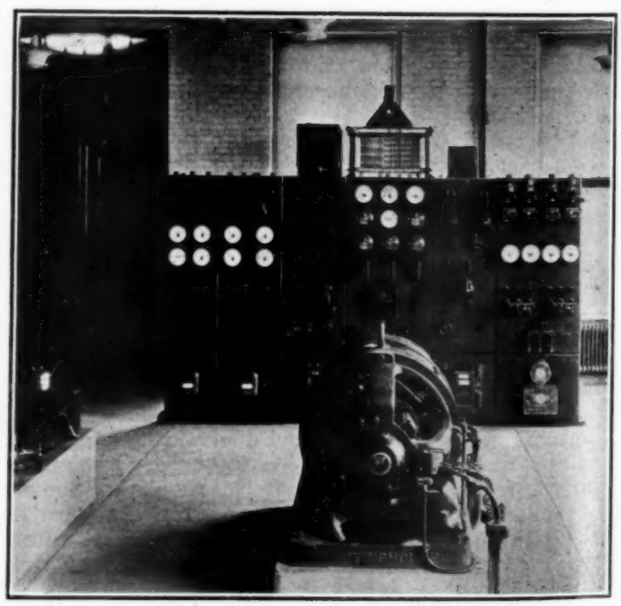
AN electric hand lantern, incorporating several unique features has been placed on the market recently by the Economy Electric Lantern Company, Chicago, which was designed primarily for the use of trainmen. It has two white lights on the bottom of the lantern body, one of which may be used as a spot light, being fitted in a polished reflector for work requiring a concentrated beam of light, such as reading car numbers, etc. The other white light mounted on the bottom face of the case is more diffused and is used for hand signaling purposes and general illumination.

Electric Hand Lantern

As another special feature, this lantern also has a red light on one side fitted with a "beehive" lens. It is claimed that this red light can be seen further than ordinary red lanterns using oil, and is therefore more efficient for flagging. Both the red and white lights can be burned at the same time or either can be burned alone as the occasion requires. As this electric lantern has both the white and red lights, it may be used to replace the two oil lanterns which are ordinarily required for flagging, thus making it a full service white and red lantern.

The body of the lantern is formed of one piece of seamless sheet brass, nickel-plated if desired. The base is of rustproof steel with frosted enamel finish. The handle is made of seamless aluminum tubing covered with fibre. This handle swings on ratchet bearings and is held in each position by springs. A standard lantern size dry cell battery is used. The three light bulbs, of the same size and type, are interchangeable. Inside the nest is an extra socket in which an emergency bulb may be carried if desired.

The Chicago & Alton is now conducting an extensive operating test of this lantern for the use of trainmen.



Automatic Substation, Electrical Engineering Laboratory, New York University

General News Department

The Society of Terminal Engineers will hold its next regular meeting at 29 West 39th street, New York City, on Tuesday evening, February 10. A paper will be presented on railroad rates, with emphasis on terminal facilities, etc., by R. E. Lambert.

The Pennsylvania on January 2 extended motor truck freight service from Lima, Ohio, to Mansfield, as a result of the successful operation of its motor truck freight service between Ft. Wayne and Lima. Two motor trucks make the trip between Lima and Mansfield each day except Sundays and holidays. One truck operates out of Lima, going as far as Upper Sandusky, and making the return trip the same day. Another truck leaves Mansfield for Upper Sandusky and return each day.

The Chicago Great Western and the Minneapolis, Northfield & Southern have reached an agreement for the joint operation of the Great Western branch line from Randolph, Minn., to Mankato, a distance of 50 miles. Under the agreement, the Chicago Great Western will continue the operation of its freight service on the line, but the passenger trains, including local trains and through trains from Minneapolis to Mankato, will be operated by the Minneapolis, Northfield & Southern.

New York Railroad Club Meeting

Dr. H. C. Metcalf, director of the Bureau of Personnel Administration will discuss "Some Fundamentals of Sound Personnel Administration" at the meeting of the New York Railroad Club on Friday evening, February 20.

Savarin Restaurants on the Pennsylvania

The Pennsylvania Railroad announces that its station restaurants on the Eastern lines are to be operated by "The Savarins, Inc.," proprietors of well known first class restaurants in New York city. The railroad management will, of course, continue to exercise general supervision, particularly as to the standards of service. The restaurants embraced in the contract are those at New York city, Jersey City, North Philadelphia, Broad Street, Philadelphia, Baltimore, Harrisburg and Pittsburgh. These restaurants now serve annually from 3,000,000 to 4,000,000 meals and have a staff of 600 employes.

The first restaurant to be taken over will be that in New York on March 1. James T. Clyde will assume general charge of operations, representing The Savarins. The Savarin management will transfer to its own payrolls the entire present restaurant forces, and will follow the policy of retaining those who continue to prove satisfactory, with full protection of their pensions and other privileges and rights.

Electric Operation Will Be Started on the Detroit & Ironton About June 1

First tests of the Detroit & Ironton locomotives will take place on a section of track just outside the River Rouge Ford plant at Detroit, Mich., about June 1. Foundations for trolley-support arches have been laid along three miles of this double-track line. Concrete parts for the trolley supports are being cast. Power for operating the road will be developed as 13,200 volts, 60-cycles, 3-phase alternating current. A frequency changer substation to be built near the power house will convert this energy to 22,000-volts, single-phase, 25-cycle alternating current power for use on the trolley. The track and trolley are expected to be in condition for tests about June 1.

Three of the four sections of the first locomotive have been practically completed. The main wiring on the first section has been completed and the control wire is being installed. The main wiring has also been partially completed on the second and third sections. Flexible armored cable is being used for all main circuit connections. This is a wiring feature which has probably never before been used in an electric locomotive. All of the main direct current leads are covered with steel armor, while the alternating current leads are covered with brass armor. It is expected that the locomotive will be completed and ready for tests some time during April.

Report on Wabosso Derailment

The Interstate Commerce Commission has issued a report signed by W. P. Borland, director to the Bureau of Safety, on the derailment of southbound passenger train No. 29, on the Florida East Coast, near Wabosso, Florida, on November 14, when four passengers were killed and 16 were injured. The train was moving at a speed variously estimated at between 35 and 55 miles an hour, on good track, where the line was straight, when the rear coach ran off the track and was overturned. The derailment was due to a loose steel tire of a cast iron wheel. The inspector found that the tire was too large and the space between it and the center had been filled with a liner; and the mate of the wheel was also found insecurely shrunk upon its center. This wheel also had a liner between the tire and the wheel center. The report says that responsibility "seems to attach primarily to an improper shrinkage fit between tire and wheel center."

Inspection of the car was regularly made and nothing out of order had been discovered prior to the accident. The engineer-physicist made a study of the case and points out features, in wheels of this type, which raise a doubt concerning the efficiency of inspection. "If uncertainty attaches to such inspection, it places greater responsibility on the operations of machining and assembling the tire on its center."

The wheels of this truck appear to have been made by Krupp. The steel tire, after being shrunk upon the center, was secured by two retaining rings, each pair of rings having 10 bolts, 5/8 in. in diameter. After the accident, the defective wheel had left but one bolt, 9 being missing. The rim of the cast iron center showed wear.

Railroad Legislation in Congress

The steering committees of the Senate and the House that met on February 2 to map out legislation which they propose to have enacted before the adjournment of Congress on March 4 made no provision for any railroad legislation except the McLean bill, to reduce the rate of interest on the notes of the railroads to the federal government on certification by the Interstate Commerce Commission that such reduction is necessary to avert receivership. This bill was placed second on the list by the Senate committee. The House committee is still holding hearings on the Gooding bill, which was passed by the Senate last year, and even if it should be reported by the committee a special rule would be required to bring it before the House at this stage of the session.

The Howell-Barkley railroad labor bill has apparently been abandoned already. Senator Cummins has announced that he has dropped his efforts to get the representatives of the railroads and of the labor organizations to confer with respect to a possible compromise bill and no efforts have been made in the House in its favor since the session opened. Also the Senate committee has decided to hold no more hearings at this session on the consolidation bill.

The independent offices appropriation bill, carrying the appropriation for 1926 for the Interstate Commerce Commission, has been debated in the House during the first part of the week and the action of the appropriation committee in recommending the amount which the commission declared necessary, in excess of that recommended by the budget bureau, seemed to meet with general approval. Several Representatives took occasion to criticise existing freight rates but took the position that an adequate appropriation might enable the commission to give more attention to the needs of the farmer. Representative Newton of Minnesota tried

to have inserted an amendment that no part of the commission's appropriation shall be expended for investigation requested by either house of Congress except those authorized and directed by the concurrent resolution of both houses. This was because the Senate, particularly, in recent years has adopted many resolutions, often at the request of a single Senator and without debate, calling on the commission to furnish it with information that required an extensive investigation at the expense of its regular work. However, the resolution was rejected in committee of the whole, after some discussion, by a vote of 20 to 17.

President Coolidge signed the Hoch-Smith rate revision resolution on January 30.

Revenues and Expenses of Canadian Roads

With a reduction in freight traffic of 19 per cent and in passenger traffic of 16 per cent, revenues of the Canadian National for November last were less than in the same month in 1923 by $2,707,598 or 12.9 per cent. Operating expenses were reduced by $1,953,655 or 11.5 per cent by cutting maintenance of way and structures $83,528 or 3.5 per cent, maintenance of equipment $615,140 or 15.2 per cent and reducing transportation expenses by $1,144,641 or 12.2 per cent. The operating ratio was raised from 80.49 per cent to 81.71 per cent and the net operating revenues were less by $753,942. The reduction in the payroll was $1,010,492 or 9.1 per cent for a reduction of 6.7 per cent in the number of employees. Despite the lighter traffic train-loading was only 3 per cent lighter, the average revenue per train-mile was greater by 35 cents and the average expenses per train-mile were practically unchanged. For the period from January to November, 1924, the Canadian lines showed an increase in net operating revenues of $593,701 but the United States lines showed a decrease of $2,832,822, reducing the net operating revenues for the entire system by $2,239,121.

Freight traffic on the Canadian Pacific last November showed a decrease from the same month in 1923 of 26.2 per cent, although it was 3 per cent heavier than in October, 1924. Freight revenues were consequently reduced to the extent of $3,283,338 or 19.4 per cent and passenger revenues were also down $475,763 or 16 per cent. Total revenues showed a decline of $4,123,678 or 18.7 per cent and net operating revenues were less by $1,086,889. The operating ratio, however, was also reduced from 67.33 per cent to 65.88 per cent. The reduction in operating expenses amounted to $3,036,789 or 20.4 per cent, the largest cuts being $1,242,613 in maintenance of way and structures and $1,195,676 in transportation expenses. Although for the eleven months the gross revenues were reduced by $8,669,260, expenses were cut by $8,859,867, increasing net operating revenues by $190,607.

FOR ELEVEN MONTHS ENDED NOVEMBER 30

	1924	1923
All Railways		
Operating revenues	$404,568,312.85	$427,741,366.01
Operating expenses	348,705,776.88	370,633,774.44
Net operating revenues	55,862,535.97	57,107,591.57
Operating income	49,991,270.36	51,948,066.39
Canadian National		
Operating revenues—Canadian lines	$184,784,296.66	$195,305,748.96
United States lines	31,487,149.34	35,176,631.09
Total	$216,271,446.00	$230,482,380.05
Operating expenses—Canadian lines	$175,174,272.60	$186,289,425.40
United States lines	26,613,205.37	27,469,865.26
Total	$201,787,477.97	$213,759,290.66
Net operating revenues—Canadian lines	$9,610,024.06	$9,016,323.56
United States lines	4,873,943.97	7,706,765.83
Total	$14,483,968.03	$16,723,089.39
Operating income—Canadian lines	$9,801,110.27	$9,173,965.97
United States lines	Dr. 477,855.22	1,077,196.80
Total	$9,323,255.05	$10,251,162.77
Canadian Pacific		
Operating revenues	$165,268,683.96	$173,937,944.20
Operating expenses	132,285,331.15	141,145,198.63
Net operating revenues	32,983,352.81	32,792,745.57
Operating income	33,497,940.51	33,522,882.59

Net operating revenues of the Canadian Pacific Railway were well maintained in 1924 despite a substantial decrease in gross earnings, it is shown in the statement of earnings and expenses for December and for the twelve months ended with December, which is the fiscal year of the company. The statement issued today shows this showing as to net profits to have been made possible through reductions in operating expenses, which nearly kept pace with the decline in gross. Net for the year at $37,227,241 is about a quarter of a million below that of 1923, but it is the second best display since 1917, and will be ample to provide the customary 7 per cent on the $260,000,000 of ordinary stock, or $18,200,000, the remaining 3 per cent of the dividend being drawn from special income account. Fixed charges, preferred dividends and pension fund require something over $17,000,000, thus leaving approximately $20,000,000 applicable to the ordinary dividend. The year's gross at $182,502,156 was the lowest since 1919.

The month of December resulted in a falling off of $226,826 in net, as compared with the corresponding month of 1923. Gross was off nearly $3,500,000, while working expenses declined nearly $3,250,000. Net for the month, however, was the second best since 1918, while gross for December was the lowest since 1917.

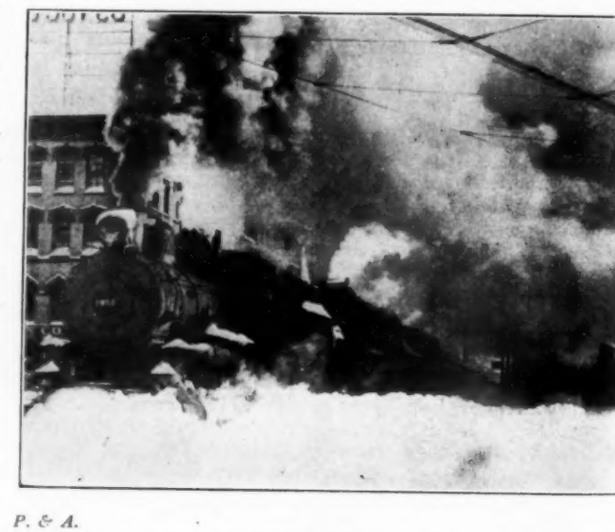
Gross earnings, operating expenses and net earnings are compared in the following:

	1924	1923	Decr.
FOR DECEMBER			
Gross earnings	$15,690,171	$19,136,674	$3,446,502
Operating expenses	11,960,870	15,180,546	3,219,676
Net	3,729,301	3,956,127	226,826
TWELVE MONTHS ENDING DECEMBER			
Gross earnings	$182,502,156	$195,837,089	$13,334,933
Operating expenses	145,274,914	158,358,079	13,083,165
Net	37,227,241	37,479,010	251,768

Heavy Snow in Central New York

A storm which prevailed throughout New York State on Thursday, January 29, and which was most severe between Albany and Rochester, delayed passenger trains on the main line of the New York Central from 10 to 20 hours, and caused similar disturbances on many other lines. At and near Syracuse 20 important New York Central trains were stalled all night, and many passengers slept in the coaches. The hotels of the city were filled and several hundred people stayed in the station throughout the night. The snow was 24 inches deep and in many places 30 inches.

The snowfall was heavy as far south as Scranton, Pa., and trains



P. & A.

Opening the New York Central's Line Through the Streets of Syracuse, N. Y.

in that region were many hours behind time. At Pittsburgh, Pa., the depth was 10 inches, the heaviest snowstorm since 1914. A press dispatch from Latrobe, Pa., 40 miles east of Pittsburgh, on the 30th, said that the Pennsylvania, keeping shovelers at work all night throughout the Pittsburgh division, had moved trains without great delays.

Coincident with delays due to snow the railroads using the North River ferries at New York City suffered serious delays on Friday, the 30th, from drifted ice, many boats being held fast in the river, or prevented from leaving their slips for hours at a time. The under-river trains of the Hudson & Manhattan were crowded to suffocation for half a day.

The New York Central on Friday characterized the storm on that road as the worst in its history (between Albany and Rochester), reporting the depths from 3 ft. to 5 ft. on the level. On Monday, February 2, another storm visited northern and central

New York and gave added trouble to the New York Central. Albany reported four inches, Rome eight inches and Auburn eight inches.

Wage Statistics for November

Class I railroads reported for the month of November, 1924, a total of 1,788,723 employees, a decrease of 33,893, or 1.9 per cent as compared with the returns for October, 1924, according to the Interstate Commerce Commission's monthly bulletin of wage statistics. This reduction in employment is largely attributable to seasonal reductions in the maintenance of way and structures forces. The total compensation decreased $19,421,725, or 7.6 per cent. The difference between the per cent of decrease in compensation and that in employment is explained by the fact that there were only 24 working days in November, while there were 27 in October. Compared with the returns for the corresponding month last year the employment shows a decrease of 5.8 per cent and the compensation a decrease of 5.5 per cent.

The monthly earnings, by groups, were as follows:

	Monthly earnings of			
	Employees reported on daily basis		Employees reported on hourly basis	
Group	November, 1924	November, 1923	November, 1924	November, 1923
Executives, officials and staff assistants	$437	$429	....	....
Professional, clerical and general	182	181	$122	$123
Maintenance of way and structures	240	239	85	86
Maintenance of equipment and stores	246	244	119	120
Transportation (other than train and yard)	98	97	120	120
Transportation (yardmasters, etc.)	255	253	149	143
Transportation (train and engine service)	....	....	190	185

Increases or decreases in the number of employees, by groups, November, 1924, compared with previous month, and with November, 1923, were as follows:

	November, 1924, compared with	
Group	October, 1924	November, 1923
Executives, officials and staff assistants	53	d 137
Professional, clerical and general	d 329	d 8,033
Maintenance of way and structures	d 31,638	d 20,527
Maintenance and equipment and stores	417	d 50,014
Transportation (other than train and yard)	d 1,804	d 8,958
Transportation (yardmasters, etc.)	86	d 2,113
Transportation (train and engine service)	d 678	d 21,040
Net increase or decrease	d 33,893	d 110,822

Superintendents' Association's Plans for Ensuing Year

The Executive and Advisory Committee of the American Association of Railroad Superintendents has appointed the members of its committees and selected subjects for them to consider and report on at the next convention at Richmond, Va., on June 16-19, as follows:

(a) What division officers can do to (1) promote interest and activity in the Shippers' Regional Advisory Board movement; (2) improve relations and contact with shippers individually and collectively; (b) how to meet truck competition in the handling of l.c.l. freight; (c) proper service on light branch lines: A. E. Boughner, superintendent terminals, Missouri-Kansas-Texas, St. Louis, Mo., chairman.

How to secure greater efficiency from locomotives: S. P. Henderson, division superintendent, Chicago & Alton, Bloomington, Ill., chairman.

(a) Operating statistics for the superintendent; (b) the cleaning of cars after release from lading; (c) prevention of loss and damage to freight: (1) rough handling of cars in yards and its effect on loss and damage, (2) what action should be taken to obtain shippers' co-operation in properly crating, packing, etc., and in use of metal and wire wrapping: F. W. Brown, assistant to general manager, Atlantic Coast Line, Wilmington, N. C., chairman.

(a) Overcoming the cross haul movement of empty cars; (b) the uniform application of A. R. A. interchange rules at all points; (c) the elimination of defensive inspection and inspection for safety only; (d) overcoming hot boxes; G. G. Derby, division superintendent, Atchison, Topeka & Santa Fe, Chanute, Kan., chairman.

Improving the distribution of freight cars: C. E. Brower, general superintendent transportation, Atlanta, Birmingham & Atlantic, Atlanta, Ga., chairman.

Adjusting train tonnage to prevent train interference: E. L. Magers, superintendent terminals, St. Louis-San Francisco, Springfield, Mo., chairman.

(a) Abolishing the Form "31" order and exclusive use of Form "19" order; (b) flagging in automatic signal territory; (c) operating trains against current of traffic; (d) operating rules necessary in automatic train control territory: C. A. Mitchell, superintendent, New York, New Haven & Hartford, Hartford, Conn.

Securing greater results from fuel: H. R. Saunders, superintendent terminals, Chicago, Rock Island & Pacific, Chicago, chairman.

How to increase the daily average mileage per car: J. M. Walsh, superintendent, Yazoo & Mississippi Valley, Memphis, Tenn.

The embargo—its purpose and proper use from the standpoint of a large terminal: Charles Burlingame, superintendent, Terminal Railroad Association of St. Louis, St. Louis, Mo., chairman.

The prevention of grade crossing accidents: W. S. Williams, general superintendent, Illinois Central, Waterloo, Iowa, and F. E. Williamson, general superintendent, New York Central, New York City.

Arrangements are also being made for the presentation of papers on: (1) Ways of improving efficiency in terminals including the proper classification of freight trains to secure efficient and economical operation and avoid intermediate and terminal switching; (2) the distribution of cars on a nation-wide basis; (3) increasing the average load per car, and (4) how the interchange of business between Mexico and the United States may best be stimulated.

Crow's Nest Case Before Canadian Supreme Court

Another stage in the long legal battle over the Crow's Nest Pass Agreement was begun on Tuesday of this week before the Supreme Court of Canada when an imposing array of counsel representing the railways, the Western provinces of Canada and shippers appeared in connection with the appeal to the Supreme Court on questions of law from the finding of the Dominion Railway Board last October which set aside the agreement as a factor in Canadian railway freight rates. In November last the Western provinces, who are also the appellants in the present case, appeared before the federal Cabinet to appeal on questions of merit from the board's ruling. As a result of that hearing the federal government on December 25 last restored agreement pending the present hearing before the Supreme Court. Appearing this week for the railways were: Eugene Lafleur, W. N. Tilley, E. P. Flintoft and Alistair Fraser; for the three prairie provinces, H. J. Symington, of Winnipeg, is presenting the case; for British Columbia, G. G. McGeer, and Sidney B. Woods for the cities of Edmonton and Saskatoon.

Mr. Symington, who opened the argument, maintained that the Crow's Nest Agreement was a special act of Parliament, making statutory provision for certain maximum railway rates on specific commodities, also that by virtue of the provisions of the general Railway Act such a special act was not within the jurisdiction of the Dominion Railway Board and the latter, therefore, had no right or power to set aside the Crow's Nest Agreement. Mr. Symington continued his argument on Wednesday.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 165 Broadway, New York City. Next Convention, May 26-29, 1925, Alexandria Hotel, Los Angeles, Calif. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—John B. Wright, Westinghouse Air Brake Co. Meeting with Air Brake Association.

AMERICAN ASSOCIATION OF ENGINEERS.—C. E. Drayer, 63 E. Adams St., Chicago. Next convention, 1925, Orlando, Fla.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—Grant Williams, 1341 Railway Exchange, Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 So. Michigan Ave., Chicago. Annual meeting, June 23, 1925, Portland, Ore.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, June 16-19, 1925, Richmond, Va.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcherdt, 202 North Hamilton Ave., Chicago, Ill.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York.

Freight Station Section (including former activities of American Association of Freight Agents).—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill. Next meeting, May 19-21, 1925, Kansas City, Mo.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association).—J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York. Annual meeting, April 28-30, Morrison Hotel, Chicago.

Telegraph and Telephone Section (including former activities of the Association of Railroad Telegraph Superintendents). W. A. Fairbanks, 30 Vesey St., New York.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago, Ill.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Next annual meeting, March 10-12, 1925, Chicago. Exhibit March 9-12, by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch.

Electric Section.—E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York, N. Y. Annual meeting, March 12 and 13, 1925, Hotel Drake, Chicago.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Business meeting, June 15, 1925. No exhibit in 1925.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y. Exhibit by Railway Supply Manufacturers' Association.

Division VII.—Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, May 25, 1925, Kansas City, Mo.

Car Service Division—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

American Railway Bridge and Building Association.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 20-22, 1925, Buffalo, N. Y. Exhibit by Bridge and Building Supply Men's Association.

American Railway Development Association.—A. L. Moorshead, Industrial Engineer, Erie R. R., New York, N. Y. Next meeting, May 13-15, 1925, San Antonio, Texas.

American Railway Engineering Association.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Annual meeting, March 10-12, 1925, Chicago. Exhibit by National Railway Appliances Association.

American Railway Master Mechanics' Association.—(See American Railway Association, Division V.)

American Railway Tool Foremen's Association.—G. G. Macina, C. M. & St. P. Ry., 11402 Calumet Ave., Chicago. Annual convention, August, 1925, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

American Short Line Railroad Association.—T. F. Whittelsey, 1319-21 F St., N. W., Washington, D. C.

American Society for Steel Treating.—W. H. Eisenman, 4600 Prospect Ave., Cleveland, Ohio.

American Society for Testing Materials.—C. L. Warwick, 1315 Spruce St., Philadelphia, Pa. Annual meeting, June 22-26, Chalfonte-Haddon Hall, Atlantic City, N. J.

American Society of Civil Engineers.—33 W. 39th St., New York. Regular meetings 1st and 3rd Wednesdays in month, except July and August, 33 W. 39th St., New York.

American Society of Mechanical Engineers.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, A. F. Stuebing, Chief Engineer, Bradford Draft Gear Co., 23 W. 43rd St., New York.

American Train Dispatchers' Association.—C. L. Darling, 10 East Huron St., Chicago, Ill. Biennial convention, July 20, 1925, Chicago.

American Wood Preservers' Association.—P. R. Hicks, Room 1146, Otis Bldg., Chicago.

Association of Railway Claim Agents.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual meeting, June 17, 1925, Winnipeg, Canada.

Association of Railway Electrical Engineers.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Annual meeting, October 20-24, Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

Association of Railway Executives.—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.

Association of Railway Supply Men.—E. E. Thulin, Peoples Gas Bldg., Chicago. Meeting with International Railway General Foremen's Association.

Association of Railway Telegraph Superintendents.—(See American Railway Association, Division I.)

Association of Transportation and Car Accounting Officers.—(See American Railway Association, Division II.)

Bridge and Building Supply Men's Association.—B. J. Wilson, Pocket List of Railroad Officials, 605 Fisher Building, Chicago. Meeting with American Railway Bridge and Building Association.

Canadian Railway Club.—C. R. Crook, 129 Charron St., Montreal, Que.

Car Foremen's Association of Chicago.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

Car Foremen's Association of St. Louis, Mo.—R. E. Giger, 721 North 23rd St., East St. Louis, Ill. Meetings, first Tuesday in month at the American Hotel Annex. St. Louis.

Central Railway Club.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday, January to November. Interim meetings, 2nd Thursday, February, April, June, Hotel Statler, Buffalo, N. Y.

Chicago Claim Conference: Personal Injury Section.—Parks C. Archer, General Claim Agent, Chicago & Alton R. R., 340 Harrison St., Chicago. Meets 12:30 p. m., first Monday each month, City Club, 315 Plymouth Court, Chicago.

Chief Interchange Car Inspectors' and Car Foremen's Association.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago.

Chief Interchange Car Inspectors' and Car Foremen's Supply Men's Association.—Bradley S. Johnson, W. H. Miner, Rookery Bldg., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.

Cincinnati Railroad Club.—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

Cleveland Steam Railway Club.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, Hotel Cleveland, Public Square, Cleveland.

Eastern Railroad Association.—E. N. Bessling, 614 F St., N. W., Washington, D. C. Annual meeting, May 14, 1925, Railroad Club, New York.

Freight Claim Association.—(See American Railway Association, Division VII.)

General Superintendents' Association of Chicago.—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesdays, preceding 3rd Friday in month, Room 1414, Manhattan Bldg., Chicago.

International Railroad Master Blacksmith's Association.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Next meeting, August 18-20, 1925, Hotel Winton, Cleveland, O. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

International Railway Congress.—Office of Permanent Commission of the Association, 17 rue de Louvain, Brussels, Belgium. President, V. Tondelier. Next session of the Congress, London, June 22-July 6, 1925.

International Railway Fuel Association.—J. B. Hutchison, 6000 Michigan Ave., Chicago. Next annual convention. May 26-29, 1925, Hotel Sherman, Chicago. Exhibit by International Railway Supply Men's Association.

International Railway General Foremen's Association.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September, 8-11, 1925, Hotel Sherman, Chicago.

International Railway Supply Men's Association.—F. S. Wilcoxen, Edna Brass Manufacturing Company, Cincinnati, Ohio. Meeting with International Railway Fuel Association.

Master Boiler Makers' Association.—Harry D. Vought, 26 Cortlandt St., New York. Next convention, May 19-22, 1925, Hotel Sherman, Chicago.

Master Car and Locomotive Painters' Association.—(See A. R. A., Division V.)

Master Car Builders' Association.—(See A. R. A., Division V.)

Mobile Traffic & Transportation Club.—T. C. Schley, 71 Conti St., Mobile, Ala. Regular dinner meetings, 6 p. m. on 2nd Thursday of each month, Battle House Hotel, Mobile, Ala.

National Association of Railway Tie Producers.—J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo. Next convention, 1925, Chicago.

National Association of Railroad and Utilities Commissioners.—James B. Walker, 49 Lafayette St., New York.

National Foreign Trade Council.—O. K. Davis, 1 Hanover Square, New York.

National Highway Traffic Association.—Elmer Thompson, 12 East 53rd St., New York.

National Railway Appliances Association.—C. W. Kelly, 825 South Wabash Ave., Chicago. Annual exhibition at convention of American Railway Engineering Association. Exhibit, March 9-12, 1925, incl.

National Safety Council.—Steam Railroad Section: E. R. Cott, Safety Agent, Hocking Valley Ry., Columbus, Ohio.

New England Railroad Club.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

New York Railroad Club.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August, at 29 W. 39th St., New York.

Pacific Railway Club.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2nd Thursday in month, alternately in San Francisco and Oakland.

Railway Accounting Officers' Association.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual meeting, June 10, 1925, Hotel Traymore, Atlantic City, N. J.

Railway Business Association.—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut Sts., Philadelphia, Pa.

Railway Car Manufacturers' Association.—W. C. Tabbert, 61 Broadway, New York.

Railway Club of Pittsburgh.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

Railway Development Association.—(See Am. Ry. Development Assn.)

Railway Electrical Supply Manufacturers' Association.—Edward Wray, 9 S. Clinton St., Chicago. Annual meeting with Association of Railway Electrical Engineers.

Railway Equipment Manufacturers' Association.—Joseph Sinkler, Pilot Packing Co., Peoples Gas Bldg., Chicago. Meeting with Traveling Engineers' Association.

Railway Fire Protection Association.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

Railway Real Estate Association.—C. C. Marlor, Room 1143, Transportation Building, Chicago.

Railway Signal Association.—(See A. R. A., Division IV., Signal Section.)

Railway Storekeepers' Association.—(See A. R. A., Division VI.)

Railway Supply Manufacturers' Association.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division, A. R. A. No exhibit in 1925.

Railway Telegraph and Telephone Appliance Association.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

Railway Treasury Officers' Association.—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa.

Roadmasters' and Maintenance of Way Association.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Next convention, September 22-24, 1925, Kansas City, Mo. Exhibit by Track Supply Association.

St. Louis Railway Club.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.

Signal Appliance Association.—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.

Southeastern Carmen's Interchange Association.—J. E. Rubley, Southern Railway Shop, Atlanta, Ga. Meets semi-annually.

Southern and Southwestern Railway Club.—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

Southern Association of Car Service Officers.—J. L. Carrier, Car. Serv. Agent, Tenn. Cent. Ry., 319 Seventh Ave., North Nashville, Tenn.

Supply Association of American Railway Tool Foremen's Association.—H. S. White, 9 N. Jefferson St., Chicago.

Track Supply Association.—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.

Traveling Engineers' Association.—W. O. Thompson, 1177 East 98th St., Cleveland, Ohio. Annual meeting, September 15-18, 1925, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

Western Railway Club.—Bruce V. Crandall, 226 West Jackson Boulevard, Room 1001, Chicago. Annual meeting, May 23, Edgewater Beach Hotel, Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

Western Society of Engineers.—Edgar S. Nethercut, 1735 Monadnock Block, Chicago, Ill.

Traffic News

A hearing on the request of livestock raisers and shippers for lower freight rates from the states west of the Mississippi river was opened in Kansas City on January 30 before an examiner of the Interstate Commerce Commission.

The Illinois Commerce Commission has ordered suspended for 120 days the proposed increases in suburban commutation fares which the roads operating suburban service in Chicago had filed with the commission and which were to become effective February 15.

A preliminary injunction to restrain enforcement of lower express rates in the western district has been denied by the United States District Court at St. Louis, Mo. The lower rates ordered by the Interstate Commerce Commission were opposed by the western and southern roads in a bill for injunction filed at St. Paul, Minn., and heard at St. Louis on January 19.

The Chicago, Milwaukee & St. Paul issued the first edition of a new publication entitled "Today and Tomorrow" on January 30. The new publication is an eight-page booklet designed to inform employees and others of the achievements and the opportunities for further development in the territory served by the railway. The booklet contains short items of current interest on agriculture, mining, and industrial activities.

The territory of the Pacific Coast Regional Advisory Board has been extended to include that part of New Mexico west of the line of the El Paso & Southwestern to French, excluding Tucumcari, and west of the Atchison, Topeka & Santa Fe from French through Raton to the Colorado state line. The entire state of Arizona has also been added. The next meeting of the board will be held at the Hotel Biltmore, Los Angeles, California, on February 20.

The Missouri Pacific reports the total number of carloads of revenue freight loaded locally and received from connections during January as 136,397, compared with 130,332 in December, 1924, and 118,629 in January, 1924. The average number of miles per car per day was 35.75 compared with 32.5 in December. The Gulf Coast Lines handled a total of 16,724 cars loaded locally and received from connections in January compared with a total of 13,343 cars in January, 1924. The International-Great Northern handled a total of 18,607 compared with a total of 16,958 during the same month last year.

The Missouri Pacific has established through train service between New Orleans, La., and Kansas City, Mo. The new train leaves Kansas City at 10 p. m. and New Orleans at the same hour. The train travels (southbound) by way of Fort Smith, Ark., Little Rock and Pine Bluff, Monroe, La., and Alexandria, and reaches New Orleans at 6:30 the second morning. Returning it leaves New Orleans at 10 p. m. and arrives at Kansas City at 7:30 the second morning. Besides the Kansas City-New Orleans sleeper the new train has a through sleeper between New Orleans and Hot Springs National Park.

Prizes Offered for Traffic Essay

The National Executive Council of Sigma Beta Chi Fraternity is offering cash and other prize awards for the best essay on any traffic and transportation problem. The purpose of the contest is to encourage practical scientific training in traffic matters in educational institutions. The competition is open to any male person over the age of 17 years, attending any academy, college, university, or other institution of higher learning or actively engaged in the traffic and transportation or allied fields. The first prize will be $25, the second $15, and the third $10. In addition there will be other awards.

Under the rules governing the contest, a contestant may submit only one essay, not to exceed 1,500 words in length. Essays must be mailed to the executive committee, National Executive Council of Sigma Beta Chi Fraternity, 1105 East Yamhill street, Portland, Ore., not later than May 15.

Commission and Court News

Interstate Commerce Commission

The commission has ordered the suspension of proposed increases in freight rates in the territory between Chicago, Duluth, Superior and the Missouri river pending an investigation.

The commission has issued a decision finding not justified a proposed readjustment of ocean-and-rail and rail-ocean-and-rail rates on classes and commodities from points in Atlantic seaboard territory and all-rail class rates from the Virginia cities to Southwestern points.

Upon reargument the Interstate Commerce Commission has issued a decision finding that the rates of mail pay for the transportation of United States mails on the New England railroads, which it prescribed in a decision effective December 13, 1923, were the fair and reasonable rates to be applied for the service rendered after February 25, 1921, the date of the application of the lines for higher rates.

Eastern Class Rate Investigation

Hearing was begun at Washington on February 4 in the Interstate Commerce Commission's eastern class rate investigation before Commissioner Eastman and Examiner Hosmer, with an attendance of representatives of shippers and railroads that completely filled the large hearing room of the commission. Several state railroad commissioners from the territory affected also sat with Commissioner Eastman. The first two days of the hearing were set aside for the testimony of R. N. Collyer, chairman of the Trunk Line Committee, who said that while the railroads had not sought the revision of their class rate structure, which was made necessary by the refusal of the commission to grant further fourth section relief as to many of the rates involved, they did not shrink from it and had endeavored to advise the shippers as to the nature of the proposals of the carriers for such a revision. One of the exhibits filed consisted of 362 pages concerning the class rate proposals made by the carriers in 1922 as a method of reducing the number of departures from the provisions of the fourth section.

Personnel of Commissions

T. L. Simmons, of Ottawa, assistant engineer of the Canadian Board of Railway Commissioners, has been appointed chief engineer for the Board to succeed George A. Mountain, who recently retired. A. H. K. Drury, of Winnipeg, will succeed Mr. Simmons as assistant engineer.

United States Supreme Court

Holds That Equipment Trust Certificates Are Subject to Stamp Tax

The Supreme Court of the United States holds that the car equipment trust certificates of the Interstate Railroad Company are subject to a stamp tax under the Act of February 24, 1919, c. 18, Title XI §1100 and Schedule A (1), of 5 cents on each $100 of face value. The question, more narrowly stated, was, whether the certificates are corporate certificates. The Supreme Court holds that they are. The court reverses the judgment of the Circuit Court of Appeals, Third Circuit, which, reversing the district court, held that the certificates were not within the schedule, that "no indebtedness is involved or obligation incurred by the trustee to the holder, but it is simply a certificate of the holder's right to proportionate participation in a rental when paid." 289 Fed. Rep. 1009, 1012. The car certificates are issued by the trust company under what is known as the Philadelphia plan, by which cars are bought and leased to a railroad, the certificate providing for payment by the trustee of principal and dividends out of the deferred rentals as provided in the lease.—Lederer v. Fidelity Trust Co. Decided January 26, 1925. Opinion by Mr. Justice Holmes.

Labor News

The Railroad Labor Board has decided that the Order of Railroad Telegraphers is the duly authorized representative of the employees in telegraph service on the Pennsylvania. This decision was rendered following the tabulation of ballots in an election held by the Labor Board itself. Out of the 7,760 ballots mailed to clerical employees by the board, 4,826 were returned. Of these 4,258 voted for the Order of Railroad Telegraphers and 318 for the Pennsylvania employees' representation plan.

The Railroad Labor Board has granted wage increases of approximately five per cent to conductors and trainmen represented by the Order of Railway Conductors and the Brotherhood of Railroad Trainmen on seventeen smaller railways located in various parts of the country. These increases are in line with those granted by the Labor Board and by the railways themselves last year and will equalize the rates of the employees on the seventeen roads with those of employees of railways which had previously settled this controversy.

Reductions in wage rates have been accepted by the labor organizations representing employees of the National Railways of Mexico to avert the necessity of reducing the number of men employed. This action was decided upon by a readjustment committee of the unions which is co-operating with the management in reducing expenses in order to better the financial condition of the National Railways. The wage reductions range from 20 per cent to 10 per cent, the percentage being less on low salaries than on higher ones. Another proposal made by the unions is that they take over the operation of railway hospitals, charging their members a small sum each month to operate them.

The shop crafts employees on the Chicago & North Western have taken a referendum vote on the question whether the co-operative plan introduced on the Baltimore & Ohio and later adopted on the Canadian National shall be put into effect on the North Western. Although the result has not been announced it is expected that the men will favor the plan, since the railway employees' department of the American Federation of Labor strongly advised its adoption. If the adoption of the plan is approved, Capt. O. S. Beyer, Jr., consulting engineer for the unions, who supervised the introduction of the plan on the Baltimore & Ohio and the Canadian National, will make a study of the North Western shops to determine at which point to start the program.

Wage Rates for Missouri Pacific Dispatchers

Wage rates of $325 a month for chief dispatchers, assistant chief dispatchers and night chief dispatchers and $250 a month for trick dispatchers, have been established by the Railroad Labor Board in Decision No. 2785 on a dispute between the Missouri Pacific and the American Train Dispatchers' Association. Previously, in Decision No. 2053, the board had remanded the dispute to the railway and the employees' organization for further negotiations. Conferences were held but no agreement was reached and the suit was again submitted to the Labor Board.

"B. & O. Plan" Being Put Into Operation in Moncton Shops of C. N. R.

Steadier employment, better working conditions, greater output and improved service to the public are expected from the application of the "Baltimore & Ohio plan" which will be put into operation in the Canadian National shops throughout the Dominion. At the present time Captain O. S. Beyer, consulting engineer for the Railway Employees' Department of the A. F. of L. at Washington, is in Moncton, N. B., headquarters of the Atlantic Region of the Canadian National Railway, making the necessary arrangements. Surveys carried on for some months have been completed and at a meeting last week Captain Beyer addressed the men in Moncton and was given a cordial reception. When the plans are completed questions of interest to the management and the men will be dealt with through committees, which are already in existence, but which in the past have concerned themselves only with grievances.

Foreign Railway News

Through Service Between Prague and Rome

Through first-class and second-class cars have been placed in service between Prague, Czechoslovakia, and Rome, via Lenz, Austria, Loeben, Villach and Portoguaro, together with sleeping-car accommodations between Prague and Graz, Austria, according to Commerce Reports.

British Railways Refuse Wage Increases—Ask Reductions Instead

Demands for general wage increases for all employees, made by the railway unions of Great Britain, as announced in the *Railway Age* of January 24, have been refused by the railway managements, who propose instead decreases averaging from $1 to $1.50 a week.

King Knights Accident Inspector

Col. J. W. Pringle chief inspecting officer of the British Ministry of Transport, formerly holding the same position under the Board of Trade, has been knighted, and now is Sir J. W. Pringle, C.B., R.E. Major Pringle, as he then was, began service under the Board of Trade in June, 1900, after a career of 17 years in the army including varied experiences in Asia and Africa.

All New Passenger Cars on the London & North Eastern to Be Articulated

The London & North Eastern Railway has announced that all passenger train rolling stock which it acquires henceforth will be built on the articulated principle. The company has recently received the first of 29 articulated trains which it has under order, each to consist of two five-coach articulated units. Savings in weight, increase in the comfort of travel and reductions in train length are the principal advantages afforded by articulation.

Swiss Federal Railway Finances Improving

An increase in both receipts and expenses of the Swiss Federal Railways is shown during the first 10 months of 1924, compared with the same period of 1923, according to Consul Robert Frazer, Jr., at Zurich. Total operating receipts during the 1924 period amounted to 338,627,236 francs, an increase of 31,314,526 francs over the 1923 period. Expenses aggregated 218,831,872 francs, which is 7,630,441 francs greater than in 1923. The gain in receipts, however, so much more than offset the added expense that the excess of total operating receipts over expenditures amounted to 119,795,364 francs, or 23,684,085 francs more than for the corresponding months of 1923.

Proposed Construction in Mexico—Railways' Claims Against Government

The board of directors of the Interoceanic Railways has presented a claim to the Mexican Government for 40,000,000 pesos, for the time the railroad has been under government administration.

A group of engineers under the direction of J. L. Phillips, have arrived at Frontera, Tabasco, for the purpose of making a detailed survey of Chiapas and Tabasco with a view of making an estimate of the cost of building a railroad across these states. It is understood that the survey is being made in the interest of a large banana raising concern.

Following a survey resulting from appeals from nearly every chamber of commerce in Mexico, that freight rates within the republic were extremely high, the Director General of the National Railways has stated that at the present time it is impossible either to reduce rates or to eliminate the 15 per cent surcharge. The necessity of repairing old equipment which had been allowed to run

down as well as purchasing new engines and cars necessary makes it impossible to lessen freight rates at this time.

A claim for 5,000,000 pesos has been presented by the National Railways to the Mexican government and recognized by the latter on account of damages sustained by the railroad during the recent de la Huerta revolution. The ten per cent profits decreed by the Mexican government to cover the service on foreign debt, in accordance with the Lamont-de la Huerta agreement, is being applied against the claim presented. The railroads have also been forced to pass up the annual dividend in spite of the fact the management increased its passenger and freight rates to keep pace with the increased salaries of the personnel. The net earnings for the period from January to June, 1924, were but 124,400 pesos, as compared with 203,700 pesos for the same period in 1923.

To Be Allowed Rates to Pay for Capital Improvements, British Railways Must Issue Stock

Much interest has been aroused, according to the Times (London) Trade Supplement, by the unanimous judgment of the Court of Appeal on a question of principle in connection with certain claims made by the railway companies under section 58 of the Railways Act, which deals with the question of standard revenue. The appeal was from a decision of the Railway Rates Tribunal, which the judgment upholds without any reservation.

The section of the act, the precise meaning of which was challenged, is that which grants to the railway companies the right to have scales of charges fixed on such a basis as will, together with the other sources of revenue, in the opinion of the Rates Tribunal, so far as practicable, yield, with efficient and economical working and management, an annual net revenue equivalent to the aggregate net revenue in the year 1913.

The act also makes provision for additional revenue based on (*a*) a sum equal to 5 per cent on capital expenditure, forming the basis on which interest was allowed at the end of the period of government control; (*b*) such allowance as may be necessary to remunerate adequately additional capital raised or provided since January 1, 1913, and not figuring in the list on which interest had been allowed; and (*c*) a reasonable allowance on further capital expenditure on works which had not at the beginning of the year 1913 become fully remunerative.

It was held in July last by the Rates Tribunal that in calculating the standard revenue, a task which must, of course, precede the fixing of scales of rates and charges, the railway groups were not entitled to include as capital various items aggregating about £13,000,000, which the companies had raised or provided from various sources for carrying out new works. The issue raised turned on the meaning which should be attached to the expression "capital raised or provided." The Railway Rates Tribunal laid down in the first place the principle that the intention of the framers of the act was that "capital" and not "capital expenditure" should be the basis of recognition for standard revenue, and on this and other grounds ruled out of consideration the amount named, which was capital raised or provided by the railway groups.

It was admitted before the Court of Appeal that "capital raised" meant capital obtained by the issue of stock, and the court decided that money drawn from various accumulated funds, even when utilized for works the outlays on which might quite properly be debited to capital account, did not come within the meaning of the subsection of the act which makes provision for interest on capital raised or provided.

It was pointed out by the Master of the Rolls that the consent of the shareholders to the employment as capital of the accumulated funds had not been obtained, but that the use of these funds was a voluntary act of the directors of the railway companies concerned, which, although it might be prudent finance, did not bring the sums so used within the scope of the act. The intention of the framers is held to have been that capital was "raised" only when it was offered for subscription and was "provided" by such measures as the transaction under which the Great Western Railway issued stock when taking over the property of the Swansea Harbor Trust. On these and other grounds the appeal of the railway companies was dismissed. The Master of the Rolls, in the course of his judgment, said that the interpretation contended for by the railway companies would, if allowed, leave them masters of the situation. Railway managements could, by the simple expedient of expending money on capital account, at any time correspondingly increase their annual net revenue.

Equipment and Supplies

Locomotives

THE NORFOLK & WESTERN has given a contract for the construction of 30 engine tanks with a capacity of 16,000 gal. of water and 23 tons of coal, to the American Locomotive Company. The work is to be carried out at the Richmond, Va., plant of the locomotive company.

Freight Cars

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 500 gondola cars.

THE PIEDMONT & NORTHERN is inquiring for 49 flat cars and one box car of 40 tons' capacity.

THE AMERICAN MOLASSES COMPANY, New York, is inquiring for 10 tank cars of 8,000 gal. capacity, with 50-ton trucks.

THE PACIFIC RAILROAD OF NICARAGUA is inquiring through the car builders for 20 double-sheathed box cars of 20 tons' capacity.

THE INTERNATIONAL RAILWAYS OF CENTRAL AMERICA have ordered 6 tank cars of 4,300 gal. capacity from the Magor Car Corporation.

THE WESTERN FRUIT EXPRESS is inquiring for one lot of 400 steel underframes and another lot of 350 steel underframes for refrigerator cars.

THE CANADIAN NATIONAL has ordered 325 automobile cars from the Canadian Car & Foundry Company, and 175 from the Eastern Car Company, Ltd.

SWIFT & CO. has given an order for 150 stock cars, to the Illinois Car & Manufacturing Company. Inquiry for these cars was reported in the *Railway Age* of January 10.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE is inquiring for 500 box cars in addition to the 250 composite hopper cars, inquiry for which was noted in the *Railway Age* of January 10.

THE EMPIRE REFINERIES, INC., is inquiring for 200, class 3 tank cars of 8,000 gal. capacity; 30, class 4 tank cars of 8,000 gal. capacity and 2, two-compartment tank cars of 6,000 gal. capacity.

THE SOUTH AFRICAN RAILWAYS have ordered 300 high-side gondola cars from the Leeds Forge Company, Ltd., England. Inquiry for this equipment was reported in the *Railway Age* of January 10.

THE FORD MOTOR COMPANY, reported in the *Railway Age* of December 20 as inquiring for 475 gondola cars and 50 flat cars, has ordered this equipment from the Standard Steel Car Company.

THE PENNSYLVANIA SALT MANUFACTURING COMPANY, Philadelphia, Pa., has ordered 5 tank cars of 15 tons' capacity from the General American Tank Car Corporation. These cars are to be used for carrying liquid chlorine.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 1,000 steel underframe box cars of 55 tons' capacity from the American Car & Foundry Company. Inquiry for these cars was reported in the *Railway Age* of January 10.

Passenger Cars

THE ERIE is inquiring for 15 underframes for express refrigerator cars.

THE CANADIAN NATIONAL has ordered 11 tourist cars from the National Steel Car Corporation.

THE NEWFOUNDLAND GOVERNMENT RAILWAY contemplates buying two steam passenger cars for branch line service. H. J. Russel is general manager, St. Johns, N. F.

THE CHICAGO, ROCK ISLAND & PACIFIC, reported in the *Railway Age* of January 31 as about to enter the market for 5 baggage and mail cars, is now inquiring for this equipment.

Iron and Steel

THE BALTIMORE & OHIO is inquiring for 1,000 tons of steel for bridges.

THE FLORIDA EAST COAST is inquiring for 300 tons of steel for three bridges.

THE ELGIN, JOLIET & EASTERN has ordered 3,200 tons of rail from the Illinois Steel Company.

THE WHEELING & LAKE ERIE has ordered 2,000 tons of rail from the Carnegie Steel Company.

THE CHICAGO & WESTERN INDIANA has ordered 2,200 tons of rail from the Illinois Steel Company.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has ordered 4,200 tons of rail from the Illinois Steel Company.

THE VICKSBURG, SHREVEPORT & PACIFIC has ordered 197 tons of structural steel from the American Bridge Company.

THE LOUISVILLE & NASHVILLE has ordered 150 tons of structural steel for shops at Gentilly, La., from Grainger & Co.

THE CHICAGO, BURLINGTON & QUINCY has ordered 12,500 tons of rail from the Colorado Fuel & Iron Co., 4,500 from the Illinois Steel Company and 3,000 tons from the Inland Steel Company.

THE NEW YORK, CHICAGO & ST. LOUIS has divided an order of 21,500 tons of rail among the Carnegie Steel Company, the Illinois Steel Company, the Bethlehem Steel Corporation and the Inland Steel Company.

Machinery and Tools

THE LOUISVILLE & NASHVILLE is inquiring for eight machine tools.

THE CHICAGO, ROCK ISLAND & PACIFIC has placed an order for a 100-in. extra heavy boring and turning mill.

THE ILLINOIS CENTRAL has ordered two, 22-ton, 8-wheel standard gage locomotive cranes from the Orton & Steinbrenner Co.

Signaling

THE ATLANTIC COAST LINE has ordered from the Union Switch & Signal Co., 86 semaphore signals, style S, for installation on its line between Java, S. C., and Lanes, about 40 miles.

THE ILLINOIS CENTRAL has ordered from the Hall Switch & Signal Company, flasher lamps and relays for highway crossing signals at Duquoin, Ill., and at Waterloo, and other places in Iowa; also 552 relays for signal work at Fort Dodge, Iowa.

THE NEW YORK CENTRAL has ordered from the Hall Switch & Signal Company, 48 color-light signals, 400 relays and other apparatus for installation at South Schenectady, N. Y., North Port Byron, N. Y., and Palatine Bridge, N. Y.; also 158 relays and other apparatus for use on the lines west of Buffalo.

THE NEW YORK CENTRAL has contracted with the General Railway Signal Company to install an electric interlocking at Suspension Bridge, N. Y., the connection with the Michigan Central and the Grand Trunk. The machine will have 131 working levers and 53 spare spaces. This plant will replace a low-pressure pneumatic plant which has been in use 24 years. In connection with this interlocking, 52 Hall "Searchlight" signals will be used.

THE PERE MARQUETTE has contracted with the General Railway Signal Company for the installation of automatic train control throughout its line between Grand Rapids, Mich., and Detroit, except on those portions of the line within the terminals at Grand Rapids, Lansing and Detroit; a total of about 146 miles of road. This part of the road is already equipped with automatic visual block signals. The automatic train control will be of the G-R-S intermittent, inductive, auto-manual type.

Supply Trade News

The Hubbard Steel Foundry Company, East Chicago, Ill., is constructing a machine shop, 150 by 120 ft.

Roy Gill has joined the sales organization of the **Blodgett Engineering & Tool Company,** Detroit, Mich.

The Pantasote Company will remove its New York office on February 14 from 11 Broadway to 250 Park avenue, New York City.

O'Neill Ryan, Jr., has been appointed advertising manager of the **Celotex Company,** Chicago, to succeed M. F. Harris, resigned.

C. F. McCuen, general sales agent of the Camel Company, Chicago, has been placed in charge of sales of **W. H. Miner, Incorporated,** Chicago.

The Scullin Steel Company is planning the construction of a two-story addition, 60 by 60 ft., to cost approximately $30,000 with equipment, at St. Louis, Mo.

John Heller, whose appointment as sales manager of the **International Oxygen Company,** Newark, N. J., was reported in the *Railway Age* of January 10, has been elected secretary of the company.

The Ralston Steel Car Company, East Columbus, Ohio, is planning the construction of a one-story addition to its main plant, a new axle and wheel building and a paint and waste storage building.

M. G. Truman, president of the Marsh & Truman Lumber Company, and an executive member of the Railway Business Association, has been elected president of the Lumbermen's Association of Chicago.

C. L. Wilkins, representative of the **Walworth Manufacturing Company,** with headquarters in Chicago, has been promoted to manager of the railroad and industrial department, to succeed J. E. Walsh, resigned.

Carter P. Whitcomb, assistant sales agent of the **Griffin Wheel Company,** Chicago, in the New England territory, with headquarters at Boston, Mass., has been transferred as sales agent to the Pacific Coast territory, with headquarters at San Francisco, Cal.

H. Barney Gengenbach has been appointed western sales manager of the **Hale-Kilburn Company,** Philadelphia, Pa., in charge of its western sales office in Chicago. Mr. Gengenbach has been serving as acting western sales manager for over a year, since the death of Harry R. Rochester.

The firm of **Cook & Riley** has been incorporated in Chicago to deal in railway and industrial supplies. It will represent the **J. Milton Hagy Waste Works,** the **E. Arnstein Paint Company,** and the **Universal Coupling Company.** The organizers are **T. R. Riley,** vice-president, and **H. G. Cook,** secretary and treasurer of Warren Corning & Co., Chicago.

J. E. Walsh, manager of the railroad and industrial department of the Walworth Manufacturing Company, with headquarters in Chicago, has been appointed vice-president of **Warren Corning & Co.,** to succeed T. R. Riley, resigned. **H. F. Freyberg,** office manager of the Vacuum Oil Company, with headquarters in Chicago, has been appointed secretary-treasurer to succeed H. G. Cook, resigned.

Russell F. Kleinman, Land Title building, Philadelphia, Pa., has been appointed sales representative of the **Scott Valve Manufacturing Company,** Detroit, Mich. Mr. Kleinman will handle the company's line of valves in Eastern Pennsylvania, Southern New Jersey, Maryland, Delaware and the District of Columbia. The **Charles H. Tinker Company,** 201 Devonshire street, Boston, Mass., has been appointed New England representative.

W. G. Zahrt, sales manager of the pump and tank division of the **Wayne Tank & Pump Company,** Fort Wayne, Ind., has been appointed director of sales, in charge of the sales organizations, of all divisions of the company, including pump and tank, water softener and oil burner. **F. O. Sallee,** manager of oil company sales, has been appointed sales manager of the pump and tank division. **R. G. Ewell** will continue in charge of the water softener sales as well as of the oil burner section.

A. L. Rider has been appointed district manager of the **Elliott Company,** Pittsburgh, Pa. Mr. Rider's headquarters are at 830 Massachusetts Trust building, Boston, Mass. He has been associated until recently with the Henry L. Doherty Company in connection with the operation of that company's properties in Cleveland, Ohio. Mr. Rider will be in charge of the activities of the New England territory for the Elliott Company, including the sale of Kerr turbines, the products of the Lagonda Manufacturing Company, Springfield, Ohio, and the Liberty Manufacturing Company, Pittsburgh, Pa.

The Foamite-Childs Corporation, Utica, N. Y., has opened a new district office in Jacksonville, Fla., 201 Peninsular Casualty building, in charge of district manager **Herbert G. Norton,** and another office has been opened at 1032 Munsey building, Washington, D. C.; **James M. Castle, Inc.,** sales and engineering representative at Philadelphia, Pa., has moved from 1212 Arch street to 1718 Vine street; the New York City district office has been moved from 183 Varick street to 128-136 West Thirty-first street. The company's interests in Ohio and Kentucky formerly handled by the Scallan Supply Company are now being directed by the **Fire Equipment Corporation,** with offices at 19 East Central Parkway, Cincinnati, Ohio; this corporation also maintains branches at Cleveland, Toledo and Columbus, Ohio. The personnel of the new Cincinnati office includes **D. H. Reedy** and **C. E. Schultz.**

David B. Rushmore, one of the consulting engineers of the **General Electric Company,** Schenectady, N. Y., has resigned and is now located in New York City, with headquarters at the University Club. He graduated from Swarthmore College in 1894 with the degree of bachelor of science and engineering and from Cornell University the following year in the electrical engineering course. In 1897 he received the degree of civil engineer from Swarthmore College and in 1923 the honorary degree of doctor of science from the same college. Mr. Rushmore was with the Westinghouse Electric & Manufacturing Company, and later with the Royal Electric Company of Montreal previous to his service of 25 years with the General Electric Company and the Stanley Electric Company, Pittsfield, which was absorbed by the General Electric Company. In 1905 he went to Schenectady, and for 17 years was engineer of the power and mining department.

50,000 Shares of Pratt & Lambert, Inc., Are Offered

Through Dominick & Dominick and Edward B. Smith & Co., New York, 50,000 shares of Pratt & Lambert, Inc., no par value capital stock were offered to the public on January 28, at $37.50 per share. The company has outstanding $836,000 par value of preferred stock which will be called immediately. It is proposed that the common stock now outstanding shall be exchanged for 202,500 shares of no par value stock. A majority of the outstanding stock has assented to the exchange. Application will be made to list the capital stock of the corporation on the New York Curb. Pratt & Lambert, Inc., was incorporated under the laws of New York in 1885, to continue the business established in 1849. The products of the company consist of varnishes, enamels, lacquers, dryers, etc. A considerable proportion of the production is sold to railroads.

The plants of the company are located at Buffalo, N. Y., Long Island City, N. Y., Chicago, Ill., and Bridgeburg, Canada.

Earnings for the ten-year period ended December 31, 1924, averaged $3.26 per share on the proposed issue of 202,500 shares of no par value stock. For the three years ended December 31, 1924, earnings averaged $5.93 per share. In no one of the last 20 years have the operations of the company failed to show a profit.

Locomotive Shipments in December

The Department of Commerce has made public the following table giving the shipments of locomotives from principal manufacturing plants in December and unfilled orders as of January 1, with comparisons for earlier months:

Year and month	Locomotives: Shipments: Total	Shipments: Domestic	Shipments: Foreign	Unfilled orders end of month: Total	Unfilled orders end of month: Domestic	Unfilled orders end of month: Foreign
1923						
January	229	217	12	1,788	1,699	89
February	207	196	11	2,220	2,141	79
March	282	269	13	2,316	2,214	102
April	217	201	16	2,204	2,111	93
May	238	228	10	2,150	2,045	105
June	232	221	11	1,958	1,854	104
July	239	211	28	1,738	1,652	86
August	272	259	13	1,497	1,406	91
September	335	313	22	1,178	1,102	76
October	310	295	15	977	915	62
November	299	270	29	691	656	35
December	329	305	24	387	365	22
Total	3,189	2,985	204	.....	.....	.....
1924						
January	151	147	4	376	344	32
February	99	92	7	499	466	33
March	134	128	4	534	494	40
April	73	63	10	640	586	54
May	111	93	18	643	589	54
June	145	134	11	531	462	69
July	140	130	10	483	416	67
August	139	121	18	361	306	55
September	104	79	25	386	333	53
October	96	78	18	462	398	64
November	133	123	10	397	331	66
December	142	132	10	431	358	73
Total	1,465	1,320	145	.....	.....	.....

Obituary

Charles Barnes Beckwith, president of the Beckwith-Chandler Company of New York and Newark, N. J., died on January 19 of heart disease at the hotel Woodward, New York City, in his sixty-sixth year. He began work with Valentine & Company, varnish makers, and after a few years was elected treasurer of that company. He resigned in 1892 and with Barrett L. Chandler organized the Beckwith-Chandler Company, of which Mr. Beckwith continued as the active head until his death.

FREIGHT CARS ORDERED, INSTALLED AND RETIRED

Month 1924	Domestic orders reported during month	Installed during month	Aggregate capacity tons	Retired during month	Aggregate capacity tons	Owned at end of month	Aggregate capacity tons	An order as of first of following month	Building in R. R. shops
January	6,020	15,589	707,367	12,329	516,695	2,310,032	100,644,107	21,696	2,417
February	18,365	11,386	554,481	10,466	411,228	2,310,570	100,767,731	40,030	2,715
March	35,846	9,962	446,094	8,726	352,481	2,311,405	101,165,332	62,340	2,697
April	11,189	8,718	369,978	8,026	306,288	2,312,074	101,223,891	62,289	2,739
May	435	9,199	439,516	9,059	360,212	2,312,237	101,303,200	57,266	2,467
June	387	10,909	538,118	8,347	321,094	2,314,798	101,569,593	57,735	2,269
July	533	16,583	1,151,302	8,413	316,927	2,322,968	102,388,652	51,156	4,602
August	4,751	15,452	785,288	8,834	333,173	2,329,582	102,845,000	40,961	3,618
September	22,520	15,455	779,078	9,337	370,607	2,336,147	103,270,000	47,553	3,045
October	11,853	16,598	834,762	10,504	*418,816	2,342,149	103,688,000	*38,403	*3,574
November	13,038	11,705	579,234	10,678	463,970	2,342,479	103,767,000	42,765	5,159
December	9,526	6,763	311,254	11,918	488,035	2,337,229	103,585,000	54,202	6,478
Total for year	*143,728	148,319	.....	116,637					

*Corrected figure.

(1) Details as to orders from *Railway Age* Weekly reports. Figures include all domestic orders placed with builders and railroad shops but not rebuilt equipment.

(2) Figures as to installations and retirements prepared by Car Service Division A. R. A. Figures cover only those roads reporting to the Car Service Division. They include equipment received from builders and railroad shops. Figures of installations and retirements alike include also equipment rebuilt to an extent sufficiently so that under the accounting rules it must be retired and entered in the equipment statement as new equipment. The figure as to orders as given in the first column of table is not strictly comparable with figures relating to installations given in succeeding columns.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company plans to construct a branch line, 65 miles long, from Doud, Tex., west to the Texas-New Mexico state line and a 56-mile extension of the Elkhart, Kan., branch in a southwesterly direction.

ATCHISON, TOPEKA & SANTA FE.—This company has awarded a contract to the Eberhardt Construction Company, Salina, Kans., for the remodeling and construction of an addition to its passenger station at Emporia, Kans., reported in the *Railway Age* of October 25, 1924.

BANGOR & AROOSTOOK.—The construction of a reinforced concrete enginehouse and oil store at Millinocket, Me., to cost $75,000 has been authorized.

NEW YORK CENTRAL.—A contract has been awarded to the Fort Pitt Bridge Works for the steel work for a bridge to eliminate a grade crossing at Suspension Bridge, N. Y.; cost, approximately $86,600. The Walsh Construction Company has received a contract for the erection of a bridge 1.1 miles north of Jersey Shore, Pa., to cost approximately $54,600.

NEW YORK, PHILADELPHIA & NORFOLK.—This company and the Pennsylvania have been authorized by the Interstate Commerce Commission to construct an extension from a point on Chesapeake Bay near the mouth of Little Creek to a point on the Norfolk & Western in Norfolk, Va., 5 miles. The cost of the project is estimated at $3,299,740. This includes $942,500 for land; $560,674 for track items; $229,000 for station and office buildings and $1,322,477 for wharves and docks.

PERE MARQUETTE.—This company plans to undertake this year a large number of improvements, the cost of which will aggregate $3,500,000. The budget includes the following projects: Grade separation at Plymouth Road, Detroit, Mich., to cost $125,000; bridge across the Galien river near Union Pier, Mich., to cost $80,000; electric power plant to operate the bridge across the St. Joseph river near St. Joseph, Mich., to cost $25,000; a coaling station at Ludington, Mich., to cost $50,000; and another coaling station at Sarnia, Ont., to cost $10,000; water treating plant at Wyoming, Mich., to cost $15,000; interlocking plant at Carleton, Mich., to cost $80,000, of which the Pere Marquette will pay $32,000. In addition to these, the budget includes the sum of $99,000 for stations at various points, $160,000 for passing tracks and sidings of which $50,000 will be spent on the Ludington-Saginaw line, and signals and interlockers to cost a total of $155,000.

New York Central Offers to Elevate Freight Line and Build an Elevated Street in New York

Julius Miller, president of the Borough of Manhattan, New York City, has made public a proposal made to the municipality by the New York Central for the reconstruction of its freight line which runs at grade through the streets from Sixtieth street southward to the terminal at St. John's Park, below Canal street. In brief, the railroad's proposal is that it will abandon St. John's Park and construct a new terminal several blocks further north and abandon operation at grade through the streets. It will instead build, entirely at its own expense, an elevated freight line surmounted by an elevated vehicular highway. This highway would extend northward to Riverside Drive at Seventy-second street. The cost would approximate $24,000,000 and in return the municipality would be expected to make certain grants of land for yard and terminal purposes and certain easements on public property. Before the agreement can be binding it must receive the approval of the New York City Board of Estimate, before which body it has now been laid.

The agreement, if carried into effect, would result in the elimination of 106 grade crossings, besides restoring several miles of streets entirely to vehicular traffic. Electric operation would supplant steam and the "dummy" locomotives now in use.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—*Acquisition.*—The Interstate Commerce Commission has authorized this company to acquire by purchase the property of the Tulsa & Santa Fe.

BOSTON & MAINE.—*Receivership Denied.*—Judge George F. Morris in the United States District Court at Concord, N. H., on January 31, denied the petition for the appointment of a receiver brought by Edward F. Brown, head of the Boston & Maine Stockholders' Protective Association. Judge Morris thought that the petitioner had not made out a case, and was not clear concerning the jurisdiction of his court in the matter. Conrad W. Crooker of Boston, counsel for Mr. Brown, will file a brief relative to the court's jurisdiction. President James H. Hustis of the Boston & Maine said at the hearing that 90 per cent of the holders of the $500,000 bonds maturing February 2 had assented to an extension of time for two months; that the bonds would not be paid if presented but that the company had $4,000,000 in cash on hand. He said that it is expected to have a definite plan of readjustment ready by April 1.

CANADIAN NATIONAL RAILWAYS.—$35,000,000 *Bonds Sold.*—Dillon, Read & Co., the National City Company, the Guaranty Company, Lee, Higginson & Co., Harris, Forbes & Co., the Bankers Trust Co., White, Weld & Co., the Continental & Commercial Trust & Savings Bank, the First Trust & Savings Bank, Chicago, and the Illinois Merchants Trust Co. are offering $35,000,000 Canadian National Railways 4½ per cent guaranteed gold bonds. The offering is divided into $18,000,000 Canadian National Railway Company, 5-year bonds, due February 15, 1930, and $17,000,000 Canadian Northern Railway Company, 10-year bonds, due February 15, 1935. The price for the 5-year bonds is 99⅞ and interest, to yield more than 4.52 per cent; for the 10-year bonds it is 97⅝ and interest, to yield more than 4.80 per cent. Principal and interest is payable in gold in New York City; also payable in Canadian currency in Toronto, Montreal and Ottawa. The Dominion of Canada guarantees principal and interest by endorsement. All of the capital stock of the Canadian National Railway Company, and the Canadian Northern Railway Company, is owned by the Government of the Dominion of Canada. The Canadian National did $55,000,000 of financing in the American market last year, comprising $20,000,000 3-year 4 per cent notes, $9,375,000 equipment trust certificates sold at the end of July and $26,000,000 30-year 4½ per cent bonds marketed in September.

About $4,000,000 of the current issue will be used toward the construction of a $30,000,000 viaduct in Toronto, in which it is joined by the municipality and the Canadian Pacific.

CHESAPEAKE & OHIO.—*Bonds.*—The Interstate Commerce Commission has authorized the authentication and delivery of $8,203,000 of first lien and improvement 20-year 5 per cent mortgage bonds and the pledge under the mortgage $741,000 of Chesapeake & Ohio of Indiana first mortgage 5 per cent 20-year bonds.

CHICAGO & ALTON.—*Guaranty.*—The Interstate Commerce Commission has issued a final certificate placing the amount of this company's guaranty for the six months following the termination of federal control at $2,246,085, of which a balance of $526,085 was to be paid on the final certificate.

DENVER & RIO GRANDE WESTERN.—*Protests Sale.*—H. L. Palmer, New York, representing interests that have been protesting against the sale of the Denver & Rio Grande Western, has appealed to the United States Circuit Court of Appeals, protesting the decision of Judge Symes, in the district court denying him the right to intervene in the mortgage foreclosure proceedings.

EST RAILWAY (FRANCE).—*Bond Issue.*—Offering was made in New York on Monday of $20,000,000 of Est Railroad of France 7 per cent external sinking fund bonds due November 1, 1954. The offering was by Dillon, Read & Co., Marshall Field, Glove Ward & Co., White Weld & Co., the Union Trust Co. of Cleveland, and Cassatt & Co., at a price of 87½ and accrued interest to yield approximately 8.10 per cent if held to maturity. Reports were to the effect that the issue was heavily oversubscribed.

Earnings after all operating charges, interest, common stock dividends and full provision for reserves, made possible a contribution in 1924 of approximately 20,000,000 francs to the French railroad common fund. The financing will provide funds for the construction of new lines, for repairs and improvements, and for the purchase of rolling stock. The company, one of the leading French railroads, operates 3,124 miles of track, connecting Paris with Belgium, Luxemburg, Alsace, Lorraine and Switzerland.

The issue of bonds represents the first foreign loan contracted by the company, and will rank equally with all other of its issues now outstanding. The company agrees not to place any mortgage, lien or other charge, on any of its property or revenues without causing this issue to be secured ratably by such instrument. A sinking fund is provided sufficient to retire the entire issue by maturity. In the event of the inability of the company to earn interest and sinking fund requirements during the life of the bonds, the French government specifically covenants to pay these charges out of the railroad common fund, or if this is insufficient, to meet the deficit out of treasury funds.

NEW YORK CENTRAL.—*Convertible Bonds.*—A. H. Harris, vice-president in charge of finances, will make announcement shortly calling attention to the fact that the $100,000,000 convertible 6 per cent bonds due May 1, 1935, convertible into stock up to May 1, 1925, at 105, must be converted prior to April 1 in order to receive the May dividend. Mr. Harris estimates that of the issue about $23,000,000 has now been converted.

NEW YORK, CHICAGO & ST. LOUIS.—*Plan Declared Operative.*—The committee appointed to carry out the plan for consolidation of the Van Sweringen system met at Cleveland on January 29, and announced that it had found sufficient stock deposited to make the plan operative as to all five companies, namely, the New York, Chicago & St. Louis, the Chesapeake & Ohio, the Hocking Valley, the Erie and the Pere Marquette. The committee includes J. J. Bernet, president, and W. L. Ross, vice-president of the New York, Chicago & St. Louis; W. J. Harahan, president of the Chesapeake & Ohio and the Hocking Valley; O. P. Van Sweringen, chairman of the board, and M. J. Van Sweringen, vice-president of the three roads named; F. D. Underwood, president of the Erie, and E. N. Brown, chairman of the board of the Pere Marquette. Mr. Brown was not present at the meeting.

Directors of the Erie, the Hocking Valley, the Chesapeake & Ohio and the Nickel Plate have approved the terms of the leases, and stockholders' meetings to approve the leases will be held respectively on March 25, 28 and 30 and April 2. Directors of the Pere Marquette were to have met February 4 but the meeting was postponed to February 11. The new company has been incorporated under the laws of Ohio as the "New York, Chicago & St. Louis Railway Company." The plan has not yet been submitted to the Interstate Commerce Commission, the approval by which body is one of the next steps required.

Analysis of Provisions.—With the publication of the approved forms of the Chesapeake & Ohio and Hocking Valley leases, the committee carrying out the Van Sweringen unification proposal made public on February 3 a statement and analysis of the provisions relating to deposited and non-exchanging shares of these and other lessor companies embraced in the plan.

Under the terms as ratified and approved for submission to shareholders, on January 30 last, when the unification plan was declared operative, three optional courses are open to shareholders of the C. & O., Hocking Valley, Erie and Pere Marquette, this analysis shows.

There is the choice, first, it is pointed out, of assenting to the plan and exchanging stock on the basis set forth in the proposal of O. P. and M. J. Van Sweringen.

Secondly, a shareholder may withhold his stock. His status will then be that of stockholder in a lessor company, the corporate existence of which will be maintained. Into the corporate treasury of the lessor company, the new company will pay rental at rates set forth in the terms under which the lessor companies are to be leased. The non-exchanging stockholder will participate in this rental to the extent of such dividend rates as the lessor company may declare on the basis of the rental fund.

A third avenue is open to the shareholder through the offer of an average market price for his non-exchanged shares, with the prerogative, if he so elects, of determining the price through appraisers designated by the Interstate Commerce Commission or appointed by the United States District Courts, or as otherwise set forth in the lease.

The committee calls attention to the fact that the shareholders of the New York, Chicago & St. Louis Railroad Company—the old company—make no exchange of stock. This old company continues without corporate change. It will own preferred and common stock in the New Company which is incorporated under the laws of the state of Ohio as the New York, Chicago & St. Louis Railway Company.

HIGHER RATES FOR EXCHANGED SHARES

Advantages in the form of relatively larger dividends rest with shares of the lessor companies deposited for exchange as against non-exchanging shares of these companies. The latter, however, participate in rental, potentially equivalent, in the majority of instances, notably in the case of common stock, to a better yield than the present dividend rates of individual lessor companies.

In the case of the Chesapeake & Ohio, now paying four per cent on the common, the exchanging common shares, for illustration, will receive 6.6 per cent and non-exchanging shares, 6 per cent. Rental, with respect to the lessor companies, is on a sliding scale. Six per cent dividend payment on new company preferred and common is the basis. Rental increases or decreases proportionately, if rates greater or less than six per cent are paid on the New Company's stock.

The following table contrasts rates on exchanged shares with rates on non-exchanging stock of the C. & O., Hocking Valley, and Pere Marquette, giving also the existing dividend rates of these companies:

	Exchanging shares receive Per cent	Non-exchanging shares receive Per cent	Present Rate of dividend Per cent
CHESAPEAKE & OHIO			
Preferred	6.9	6.5	6.5
Common	6.6	6.	4.
HOCKING VALLEY			
Common	6.	5.5	4.
PERE MARQUETTE			
Prior Preference	6.	5.	5.
Preferred	5.4	5.	5.
Common	5.1	4.5	4.

The basis of the rental payment to the Erie under the lease is $3 a share on non-exchanged first and second preferred, and $2.40 a share on non-exchanged common. The Erie's distribution of this rental would be in the order of priority of stocks, the first preferred having a preference of four per cent before distribution to the second preferred, and the latter having a four per cent preference before distribution to the common.

Because of the preference and priority which Erie first preferred has over the second preferred and common, under the provisions of the Erie charter, the incentive for the latter two classes of stock to exchange is declared apparent.

If all of the second preferred and common exchange the potential maximum rate of dividend on withheld first preferred shares, available from rental, would be the same as the dividend rate that this first preferred stock receives in exchange for new company preferred, namely 3 per cent per year. Moreover, for the first year of the lease, regardless of the amount of outstanding second preferred and common, the rental payment is limited to a rate of 3 per cent on the non-exchanged first preferred only.

The incentive to exchange in the instance of the first preferred shareholders is declared to be the better market which the preferred stock of the new company will have as against the preferred of the non-operating Erie Railroad Company, the larger security and preference as to assets and the cumulative preference for the new preferred stock which does not exist for Erie first preferred under the Erie's charter.

NEW YORK, NEW HAVEN & HARTFORD.—*Refinancing.*—Advertisements have appeared in the papers in Massachusetts asking the co-operation of industry in that state in connection with the refinancing of the $23,000,000 foreign loan of the New Haven which matures April 1. The appeal is signed by the Massachusetts Committee on Refinancing consisting of Clifford S. Anderson of the Norton Company, Worcester, and president of the Associated Industries of Massachusetts; B. Preston Clark of the Plymouth Cordage Co.; Addison L. Green of the Farr Alpaca Co.; John F. Tinsley of the Crompton & Knowles Loom Works, and Howard Coonley of the Walworth Manufacturing Company. The advertisement reads in part:

"To retire this loan at maturity, the New Haven Railroad proposes to issue bonds to the amount of $23,000,000, which will bear interest at 6 per cent, and will be partially and gradually retired out of an annual sinking fund over a term of fifteen years.

"The undersigned are in agreement with similar committees in Connecticut and Rhode Island that it is feasible to refinance to New Haven Railroad's foreign loan by direct appeal to industries, banks and individuals in southern New England so that railroad funds which would otherwise be paid out to financing agencies may be released for immediate improvements and betterments on the road, which will insure more adequate facilities and more efficient service for the present and future needs of New England industry.

"Banks and bankers are heartily co-operating in this plan and their subscriptions now exceed $9,000,000, although no underwriting charges are being made or paid. The Manufacturers' Association of Connecticut, the leaders in this movement, report subscriptions of $2,000,000 from industries and individuals of Connecticut. Under the leadership of a group of Rhode Island manufacturers, $1,000,000 has been subscribed in that state. New York subscriptions exceed $3,500,000, received from manufacturers, banks and individuals.

"The Associated Industries of Massachusetts, through its executive committee, has approved the report of a special investigating committee endorsing the proposed plan, and members of that organization have already subscribed in excess of $1,500,000.

"In communicating to the members of the Associated Industries this action by the executive committee, the president, Clifford S. Anderson, states:

"'It is the view of the executive committee of this organization that it is not a function of the Associated Industries to advise its members regarding their investments. The committee feels, however, that it would be delinquent in its duty to its members and in its public relations if it did not call to the attention of our membership, especially so much of it as is served by the New Haven Road, this outstanding opportunity to translate the good-will which has been developed in recent years toward this vitally important New England carrier into a measure of practical support which seems calculated not only to afford an early opportunity for improved railway service, but a substantial improvement in railroad credit which will redound to the advantage of all the people and institutions of Massachusetts and New England.'

"The above endorsements and the subscriptions already made seem to indicate the opinion of bankers regarding the soundness of the offered form of investment and the earnest desire of manufacturers to recognize the mutual inter-dependence of transportation and industry by practical co-operation on the part of the latter.

"Believing that the refinancing of the New Haven railroad in accordance with the above plan presents a unique opportunity to corporations and individuals to insure adequate transportation for our highly industrialized community, to improve railroad credit and enhance the value of locally held railroad securities, and to demonstrate the faith in New England which we believe is common to all our citizens, the undersigned members of the Massachusetts committee, who all represent subscribing industrial corporations, invite the largest possible measure of participation on the part of Massachusetts industry."

The Rhode Island Textile Association has urged its members to subscribe to the new loan.

SOUTHERN RAILWAY.—1924 *Earnings.*—Preliminary income statement for 1924 shows a net after charges of $17,769,140 as compared with $15,136,998 in 1923. The statement follows:

	1924	1923
Gross operating revenues	$142,486,514	$150,467,985
Total operating expenses	102,674,674	112,414,259
Net revenue from operation	$39,811,840	$38,053,727
Taxes and uncollectible railway revenue	7,752,105	7,041,796
Equipment and joint facility rents	1,617,016	2,883,794
Net railway operating income	$30,442,720	$28,128,137
Other income	4,842,661	3,584,167
Total gross income	$35,285,381	$31,712,304
Deductions from gross income (rentals, etc.)	3,266,056	3,666,145
Total available income	$32,019,326	$28,046,159
Interest on mortgaged, bonded and secured debt	14,250,185	12,909,160
Balace of income over interest charges	$17,769,140	$15,136,998

ST. LOUIS SOUTHWESTERN.—*Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority for an issue of $1,530,000 of 5 per cent equipment trust certificates that have been sold to Hayden, Stone & Co., at 98.8.

WABASH.—*Bonds Offered.*—Kuhn, Loeb & Co. offered on Thursday $12,500,000 refunding and general mortgage 5½ per cent gold bonds due March 1, 1975, at 96 and accrued interest to yield about 5¾ to maturity. The entire series, but not part thereof, will be redeemable at the option of the company on March 1, 1935, or on any interest date thereafter, at 105 per cent and accrued interest upon not less than sixty days' previous notice. These bonds will be issued under the refunding and general mortgage of the company dated January 1, 1925, and will be secured by a direct mortgage upon all of the lines of railroad and other property owned by the company. Of the bonds, $2,500,000 principal amount are to be issued for the purpose of reimbursing in part capital expenditures heretofore made by the company out of income, and $10,000,000 principal amount are to be issued for the purpose of providing for estimated capital expenditures during the current year for additions, betterments, equipment and other capital purposes. The company has authorized the construction of new freight yards at Kansas City, Mo., Montpelier, Ohio, and Detroit, Mich., additional new car and locomotive shop buildings at Decatur, Ill., and about 14 miles of new second track between Montpelier, Ohio, and Detroit, Mich., and has ordered 1,000 automobile freight cars.

Dividends Declared

Buffalo, Rochester & Pittsburgh.—Preferred, $3.00, semi-annually, payable February 16 to holders of record February 9.

Central of New Jersey.—2 per cent, quarterly, payable February 16 to holders of record February 6.

Cleveland & Pittsburgh.—$.87½, quarterly; special guaranteed, $.50; quarterly; both payable March 2 to holders of record February 10.

Delaware & Hudson.—2¼ per cent, quarterly, payable March 20 to holders of record February 26.

Green Bay & Western.—Common, $5.00, annually, payable February 9 to holders of record February 6. Cumulative A debenture certificates, $50.00 (5 per cent); cumulative B debenture certificates, $5.00 (½ of 1 per cent); both payable February 9.

Hudson & Manhattan.—Preferred, 2½ per cent, payable February 16 to holders of record February 4.

Illinois Central.—Common, $1.75, quarterly; preferred, $3.00, semi-annually; both payable March 2 to holders of record February 6.

New York, Chicago & St. Louis.—Common, 1½ per cent, quarterly; preferred, 1½ per cent, quarterly; both payable April 1 to holders of record February 16.

Norfolk & Western.—Common, $1.75, quarterly, payable March 19 to holders of record February 28.

Oswego & Syracuse.—4½ per cent, payable February 20 to holders of record February 7.

Passaic & Delaware.—2½ per cent, payable February 2 to holders of record January 24.

Pennsylvania R. R.—1½ per cent, quarterly, payable February 28 to holders of record February 2.

Syracuse, Binghamton & New York.—3 per cent, quarterly, payable February 2 to holders of record January 24.

Trend of Railway Stock and Bond Prices

	Feb. 3	Last Week	Last Year
Average price of 20 representative railway stocks	81.94	80.78	63.52
Average price of 20 representative railway bonds	90.18	89.78	84.35

[This statement corrects figures reported in last week's *Railway Age.*]

Railway Officers

Executive

R. O. Fischer, whose promotion to assistant to the vice-president in charge of operation of the Illinois Central and the Yazoo & Mississippi Valley, with headquarters at Chicago, was reported in the *Railway Age* of January 31, was born on December 13, 1884, at Terre Haute, Ind. After graduating from Watson's College at Memphis, Tenn., he engaged for a time in daily newspaper work, after which he entered railway service in March, 1905, as secretary to the general passenger agent of the Illinois Central at Memphis. He was appointed secretary to the general superintendent of the Yazoo & Mississippi Valley in November, 1906, where he remained until January, 1909, when he was promoted to assistant chief clerk to the superintendent. Mr. Fischer was promoted to chief clerk in June, 1910, and held that position until April, 1918, when he was appointed operating clerk in the office of the regional director of the Southern region of the United States Railroad Administration. He was promoted to office manager in the office of the regional director of the Allegheny region at Philadelphia, Pa., in July, 1918, where he remained until April, 1920, when he returned to the Illinois Central as office manager in charge of the office of the vice-president and general manager at Chicago. Mr. Fischer held that position until his recent promotion to assistant to the vice-president in charge of operation.

R. O. Fischer

Financial, Legal and Accounting

H. S. Larimer has been appointed land commissioner of the Chicago & North Western, with headquarters at Chicago, succeeding **J. F. Cleveland,** who has retired.

W. A. Rooks has been appointed auditor freight accounts of the Seaboard Air Line, with headquarters at Portsmouth, Va., succeeding E. L. Parker, assigned to other duties.

Operating

F. R. Simpson has been appointed superintendent of dining service of the Delaware & Hudson, with headquarters at Albany, N. Y., a newly created position.

F. F. Backus, general manager of the Toronto, Hamilton & Buffalo, with headquarters at Hamilton, Ont., has been granted a leave of absence on account of illness and **H. T. Malcolmson,** superintendent, with headquarters at Hamilton, has been appointed acting general manager and will serve as such during the absence of Mr. Backus. **W. J. Warnick,** trainmaster, has been appointed acting superintendent, with headquarters at Hamilton and the position of trainmaster has been abolished.

L. B. Burns, superintendent of the Florida division of the Seaboard Air Line, with headquarters at Tampa, Fla., has been promoted to general superintendent of the Southern district, with the same headquarters. **C. S. Cannon,** assistant superintendent of the Florida division has succeeded Mr. Burns as superintendent, and **C. L. Sauls** has been appointed assistant superintendent. **T. A. Norris** has been appointed trainmaster of the North Carolina division, with headquarters

at Hamlet, N. C., and **R. M. Benton** has been appointed assistant trainmaster, with the same headquarters.

F. T. Brastrup, superintendent of the Fargo division of the Northern Pacific, with headquarters at Dilworth, Minn., has been transferred to the Rocky Mountain division, with headquarters at Missoula, Mont., succeeding **W. C. Sloan,** whose transfer to the Lake Superior division was reported in the *Railway Age* of January 31. **J. H. Johnson,** assistant to the general superintendent, with headquarters at St. Paul, Minn., has been promoted to acting superintendent, with headquarters at Dilworth, Minn., succeeding Mr. Brastrup. **T. M. Flynn,** trainmaster, with headquarters at Glendive, Mont., has been promoted to assistant to general superintendent, with headquarters at St. Paul, succeeding Mr. Johnson.

F. H. Shaffer, superintendent of the Eastern division of the St. Louis-San Francisco, with headquarters at Springfield, Mo., has been promoted to assistant general manager in charge of the newly created First district, with the same headquarters, pursuant to the re-organization of the operating department of the road. The First district will include the Eastern, River and Southern divisions, including the Springfield, St. Louis, Memphis and Birmingham terminals. **M. M. Sisson,** assistant general manager, with headquarters at Springfield, has been placed in charge of the second district, with the same headquarters. The Second district will include the Northern, Central, Southwestern and Western divisions, including the Kansas City and Tulsa terminals. **E. L. Magers,** superintendent of terminals at Springfield, Mo., has been transferred to the Eastern division, with the same headquarters, succeeding Mr. Shaffer. **O. B. Bruton,** terminal trainmaster, with headquarters at Sapulpa, Okla., has been promoted to superintendent of terminals, with headquarters at Springfield, succeeding Mr. Magers.

Traffic

Miss Emma W. Bock has been appointed manager of the tours bureau of the Chicago, Burlington & Quincy, with headquarters at Chicago.

F. H. Meahl has been appointed general agent of the New York Central, with headquarters at Buffalo, N. Y., succeeding T. J. Moran, deceased.

P. E. Thomas, T. P. Toland and **A. P. Courvoisie** have been appointed commercial agents for the Seaboard Air Line at West Palm Beach, Fla., Lake Wales and Tampa respectively.

W. H. Dominick, assistant general passenger agent of the Delaware, Lackawanna & Western, has been promoted to general passenger agent, with headquarters at New York, a newly created position.

C. W. Adams and **L. H. Moore** have been appointed division freight agent and division passenger agent respectively of the Gulf Coast Lines, with headquarters at Harlingen, Tex., in charge of a newly established agency.

C. F. Keller, chief clerk to the vice-president in charge of traffic of the Erie, with headquarters at New York, has been promoted to coal freight agent, with the same headquarters, succeeding G. H. Reinbrecht promoted.

F. C. Hogue has been appointed general agent in the freight and passenger departments of the Denver & Rio Grande Western, with headquarters at Kansas City, Mo., succeeding E. C. Roxbury, who has resigned to accept service with another company.

Harry L. Farrell, commercial freight agent for the Buffalo, Rochester & Pittsburgh at New Castle, Pa., has been transferred to Cincinnati, Ohio, in the same capacity, succeeding **John H. Garrity,** who has been granted a leave of absence on account of illness. **John A. Meegan,** traveling freight agent at New Castle, has been promoted to commercial freight agent, with the same headquarters, succeeding Mr. Farrell. **Frank F. Rice** has been appointed commercial freight agent at St. Louis, Mo.

G. A. Hoffelder, whose promotion to assistant general freight agent of the Chicago, Burlington & Quincy, with headquarters at Chicago, was reported in the *Railway Age* of January 17, entered railway service in October, 1906, as stenographer to the general agent of the Chicago, Burlington & Quincy at Cincinnati, Ohio. He was subsequently promoted to rate clerk, chief clerk and traveling freight agent at Cincinnati, and was transferred to the general office in Chicago at the beginning of the federal control period in 1918. Since that time Mr. Hoffelder has held various positions, handling cases before the Interstate Commerce Commission and various state commissions, which he continued until his recent promotion to assistant general freight agent.

Walton O. Wright, whose promotion to general passenger agent of the Boston & Maine, with headquarters at Boston, Mass., was announced in the *Railway Age* of December 27, was born at Lynn, Mass., on June 8, 1890, and entered railway service on October 13, 1910, as a messenger in the freight traffic department of the Boston & Maine. He later served as a file clerk, general clerk, rate clerk, tariff compiling clerk, traveling freight agent and special assistant to the foreign freight agent. On May 1, 1920, Mr. Wright left railway service to become transportation manager of the Associated Industries of Massachusetts, re-entering railway service again in November 1, 1923, as assistant general freight and passenger agent for the Boston & Maine, with headquarters at Portland, Me.

Norman W. Pringle, whose promotion to the newly created position of passenger traffic manager of the Lehigh Valley, with headquarters at New York, was announced in the *Railway Age* of January 24, was born at Huntingdon, Que., on August 11, 1881, and entered railway service on November 1, 1902, with the Rutland in the freight house at Rutland, Vt. Six months later he entered the passenger department and subsequently became traveling passenger agent of the same company. In May, 1909, he entered the service of the Lehigh Valley as New England agent at New Haven, Conn., and in December, 1914, he was promoted to division passenger agent at Buffalo, N. Y. He was transferred to Ithaca, N. Y., in the same capacity, in October, 1916, and in December of the following year he was promoted to assistant general passenger agent at New York. Mr. Pringle was promoted to general passenger agent in March, 1919.

N. W. Pringle

W. T. Price, whose promotion to assistant general freight agent of the Union Pacific, with headquarters at Denver, Colo., was reported in the *Railway Age* of January 17, was born on August 12, 1883, at Astoria, Ill., and entered railway service in November, 1902, as a bill clerk for the Chicago, St. Paul, Minneapolis & Omaha, at Omaha, Nebr. He entered the service of the Union Pacific in March, 1903, as a voucher clerk in the freight claim department and later served as an investigator and traveling adjuster. Mr. Price was promoted to contracting freight agent in July, 1911, and in April, 1912, was promoted to traveling freight agent. He was promoted to commercial agent at Pueblo, Colo., in August, 1915, and left the Union Pacific in March, 1918, to become traffic manager of the Denver & Inter-Mountain. From September, 1918, until March, 1920, Mr. Price served as a captain in the United States Army, finance service. He re-entered railway service on the latter date as general agent in the freight department of the Union Pacific, with headquarters at Kansas City, Mo.

T. P. Hinchcliff, whose promotion to assistant general passenger agent of the Chicago Burlington & Quincy, with head-

quarters at Chicago, was reported in the *Railway Age* of January 24, was born on April 8, 1882, at Amboy, Ill. He entered railway service in January, 1889, as a clerk in the operating department of the Colorado & Southern and was transferred to the general freight department as a stenographer and clerk in 1901. He was promoted to freight solicitor at St. Louis, Mo., in July, 1903, and was transferred to Chicago in 1904. Mr. Hinchcliff was appointed city freight agent of the Chicago, Burlington & Quincy in July, 1910, and was promoted to traveling freight agent, with headquarters at Cleveland, Ohio, later in the same year. He was transferred to the Michigan territory in September, 1911, where he remained until 1915, when he was appointed chief clerk to the assistant general freight agent at Chicago. He was promoted to general agent at Detroit, Mich., on March 1, 1918, and held that position until May 1, 1918, when he returned to Chicago to the office of the traffic assistant to the regional director. With the reopening of the off-line offices in March, 1920, Mr. Hinchcliff was re-appointed general agent at Detroit, which position he held until his recent promotion to assistant general passenger agent.

Purchasing and Stores

W. H. Fitzpatrick, traveling storekeeper of the Chicago & North Western, with headquarters at Chicago, has been promoted to assistant general storekeeper, with the same headquarters, succeeding **A. L. Tucker,** who has retired. **D. W. Corcoran,** traveling storekeeper, with headquarters at Chicago, has been promoted to assistant general storekeeper, with the same headquarters. **W. F. Sanford** has been appointed district storekeeper, with headquarters at Green Bay, Wis., succeeding **W. F. Redman,** promoted. **E. J. Leonard,** division storekeeper, with headquarters at Clinton, Iowa, has been transferred to the Iowa division, with headquarters at Boone, Iowa, succeeding **F. H. Fick,** promoted. **F. B. Taylor** has been appointed division storekeeper on the Iowa division, with headquarters at Clinton, Iowa, succeeding Mr. Leonard.

Engineering, Maintenance of Way and Signaling

L. H. Bond, whose promotion to engineer maintenance of way of the Illinois Central, with headquarters at Chicago, was reported in the *Railway Age* of January 31, was born on November 14, 1879, at Louisville, Ky. He graduated from the DuPont Technical College in 1898 and entered railway service in September, 1899, as a chainman on the Illinois Central. He later served as a rodman and instrumentman until June, 1904, when he was promoted to assistant engineer. Mr. Bond was promoted to supervisor in December, 1905, and held that position until August, 1908, when he was reappointed assistant engineer. From June, 1910, until June, 1917, he served as roadmaster, being promoted to assistant engineer maintenance of way on the latter date. He was appointed district engineer of the Northern district, with headquarters at Chicago, in June, 1919, and was reappointed assistant engineer maintenance of way in January, 1923. Mr. Bond remained in that position until his recent promotion to engineer maintenance of way.

L. H. Bond

Dr. Hermann Von Schrenck has been appointed consulting timber engineer of the New York Central Lines and the Rutland, with headquarters at New York. **Dr. Alfred L. Kammerer** has been appointed assistant consulting timber engineer, also with headquarters at New York.

Richard Brooke, division engineer of the Charleston division of the Baltimore & Ohio, with headquarters at Weston, W. Va., has been transferred, in the same capacity, to the Wheeling division, with headquarters at Wheeling, W. Va., succeeding **A. H. Woerner,** transferred to the Western lines. **J. L. Maher,** assistant engineer maintenance of way and structures, with headquarters at Pittsburgh, Pa., has been promoted to division engineer of the Charleston division, succeeding Mr. Brooke.

Mechanical

F. T. McClure has been appointed road foreman of engines of the Eastern division of the Atchison, Topeka & Santa Fe, with headquarters at Ottawa, Kans., succeeding A. E. Dobbs, who has been assigned to other duties.

P. W. Kiefer, whose promotion to engineer of rolling stock of the New York Central, with headquarters at New York, was announced in the *Railway Age* of January 17, entered railway service as an apprentice in the mechanical department of the Lake Shore & Michigan Southern (now a part of the New York Central) and in 1916 he entered the equipment engineering department. He later served as locomotive designer, leading draftsman and on dynamometer car tests and in July, 1920, he was promoted from the position of chief draftsman in the locomotive department of the equipment engineering department to the position of assistant engineer in the office of the engineer of rolling stock. In March, 1923, Mr. Kiefer was promoted to assistant engineer of rolling stock and in May, 1924, he was promoted to engineer of motive power of the Lines East and West of Buffalo, N. Y.

Obituary

Ernest Rice, assistant engineer of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, died in that city on January 27.

O. E. Ullery, assistant engineer of the Sioux City division of the Chicago & North Western, died on February 3 of pneumonia.

A. C. Smith, formerly chief surveyor of the Denver & Rio Grande, who supervised the location of most of that line, died on December 29, 1924.

J. H. Burgis, general agent, passenger department, of the Canadian National, with headquarters at Detroit, Mich., died suddenly in Indianapolis, Ind., on January 28.

W. H. Leete, assistant treasurer of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., died in that city on February 2, from a hemorrhage which followed the extraction of a tooth.

F. J. Kelley, cashier of the Illinois Central, with headquarters at East St. Louis, Ill., died in the Illinois Central hospital, Chicago, on February 2, after a week's illness resulting from a nervous breakdown.

Arthur Kirkendall, road foreman of engines of the Central of New Jersey, with headquarters at Jersey City, N. J., died at his home in Westfield, N. J., on February 4, at the age of 63. He had been in the service of the Central of New Jersey for 42 years.

Alan H. Strong, general solicitor of the Pennsylvania System, with headquarters at Philadelphia, Pa., died suddenly of heart disease at his home in New Brunswick, N. J., on February 2. Mr. Strong was born at New Brunswick on March 5, 1856, and was graduated from Rutgers College in 1874. He entered railway service on April 1, 1895, as district solicitor of the Pennsylvania (in connection with general practice of law) at New Brunswick and on June 1, 1912, he became general attorney at Philadelphia. He was appointed general solicitor of the Pennsylvania on March 1, 1920.

THE UNION PACIFIC Industrial Tract No. 1, in Los Angeles, Cal., has now been completely equipped with track facilities and three industries have already located in it.